

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII**

In The Matter Of the Application Of

HAWAIIAN ELECTRIC COMPANY, INC.

DOCKET NO. 05-0069

**For Approval and/or Modification of
Demand-Side and Load Management
Programs and Recovery of Program
Costs and DSM Utility Incentives.**

OPENING BRIEF

EXHIBITS "A" - "E"

AND

CERTIFICATE OF SERVICE

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**GOODSILL ANDERSON QUINN & STIFEL
A LIMITED LIABILITY LAW PARTNERSHIP LLP**

THOMAS W. WILLIAMS, JR.

PETER Y. KIKUTA

Alii Place, Suite 1800

1099 Alakea Street

Honolulu, Hawaii 96813

Telephone: (808) 547-5600

Facsimile: (808) 547-5880

Attorneys for

HAWAIIAN ELECTRIC COMPANY, INC.

HAWAII ELECTRIC LIGHT COMPANY, INC.

MAUI ELECTRIC COMPANY, LIMITED

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OPENING BRIEF

This Opening Brief is respectfully submitted on behalf of Hawaiian Electric Company, Inc. ("HECO", or "Company"), Hawaii Electric Light Company, Inc. ("HELCO"), and Maui Electric Company, Limited ("MECO")¹ pursuant to the procedural schedule established in Order No. 22251, filed January 31, 2006, and Order No. 22803, filed August 25, 2006.

I. INTRODUCTION

A. BACKGROUND

The background leading up to this proceeding, and the procedural history of this docket, are detailed in Exhibit A to this Opening Brief. The background and the procedural history are briefly outlined below.

¹ With respect to the statewide issues (i.e., issue numbers 1-5), references to HECO or Company generally also will be applicable to HELCO and MECO. For specific DSM program-related issues (i.e., issue numbers 6-9), references to HECO or Company generally will be applicable to HECO only. HELCO and MECO are currently in their respective IRP-3 processes and have not at this time finalized their future DSM program proposals in the same level of detail that HECO has provided in this proceeding. HELCO and MECO plan to offer to their customers a similar portfolio of DSM programs that are expected to track closely to those programs proposed by HECO in this proceeding.

1. HECO's DSM Programs

HECO initially implemented five 5-year energy efficiency demand-side management ("DSM") programs, which were approved by the Commission in 1996. The Commission approved one-year extensions (to December 31, 2001) of HECO's Residential Efficient Water Heating Program, its Residential New Construction Program and its three Commercial and Industrial ("C&I") DSM programs on November 27, 2000.

On May 31, 2000 and June 30, 2000, respectively, HECO filed applications requesting approval of (1) a new C&I DSM program, which would have consolidated the DSM measures in HECO's three existing C&I DSM programs, for a period of five years, and (2) a new Residential DSM program, which would have consolidated the DSM measures in HECO's two existing Residential DSM programs, for a period of five years.

The parties to the proceedings submitted letter agreements in October 2001, under which HECO's three existing C&I DSM programs and two existing Residential DSM programs would be continued until HECO's next rate case (which HECO committed under the letter agreements to filing within three years using a 2003 or 2004 test year) in lieu of HECO continuing to seek approval of new 5-year DSM programs. Under the agreements, any DSM programs to be in place after HECO's next rate case would be determined as part of the case. By Order Nos. 19019 and 19020, issued November 15, 2001, the Commission approved the temporary continuation of HECO's five existing energy efficiency DSM programs, subject to certain conditions.

On August 7, 2003 and August 12, 2003, HECO filed agreements with the parties to the stipulations, which modified the stipulations by delaying the required filing of a general rate case by approximately 12 months such that HECO would utilize a 2005 test year for the filing. The

Commission approved the new agreements by Order Nos. 20392 and 20391, issued August 26, 2003 in Docket Nos. 00-0209 and 00-0169, respectively.

HECO filed applications requesting approval of (1) a Residential Direct Load Control ("RDLC") Program, on June 6, 2003 in Docket No. 03-0166, and (2) a C&I Direct Load Control ("CIDLC") Program, on December 11, 2003 in Docket No. 03-0415. The Commission approved the programs, as modified by stipulated agreements between HECO and the Consumer Advocate, by (1) by Decision and Order No. 21415, issued October 14, 2004 (RDLC), and (2) Decision and Order No. 21421, issued October 19, 2004 (CIDLC).

At the panel hearings, HECO stated that it intends to file proposed modifications to its load management programs by the end of the year. As has been indicated in other filings, HECO intends to add a residential air conditioning load control component to its RDLC Program, and intends to offer expanded options, including a customer demand response component, in its CIDLC Program.

HECO filed an application requesting approval of a pilot Residential Customer Energy Awareness Pilot ("RCEA") Program on May 15, 2003 in Docket No. 03-0142. The Commission issued final Decision and Order No. 21756 ("D&O 21756") on April 20, 2005 denying the application (as revised on October 7, 2004) without prejudice, citing concerns raised by the Consumer Advocate. D&O 21756 stated that "an educational program, such as the RCEA Pilot Program may be better suited as one component of a portfolio of DSM measures, which may be considered in other proceedings before the commission, if HECO so chooses." D&O 21756 at 10-11. HECO then proposed in its pending rate case to implement a customer awareness campaign instead, funded at \$1,000,000 annually.

2. HECO's 2005 Test Year Rate Case

In its Application, filed November 12, 2004 in Docket No. 04-0113 (the "Rate Case Docket"), HECO requested the approvals necessary (1) to implement seven new energy efficiency DSM programs; (2) to recover the program costs for the seven energy efficiency DSM programs, an RCEA², and two load management DSM programs through base rates; (3) to implement and recover the costs of a proposed DSM utility incentive (given discontinuance of the current lost margin recovery and shareholder incentive mechanisms pursuant to the prior DSM stipulations) through base rates; and (4) to reconcile DSM customer incentives and the DSM utility incentive through a proposed DSM Reconciliation Clause.

The new energy efficiency DSM programs that HECO proposed in the Rate Case Docket included the: (1) Commercial and Industrial Energy Efficiency ("CIEE") Program; (2) Commercial and Industrial New Construction ("CINC") Program; (3) Commercial and Industrial Customized Rebate ("CICR") Program; (4) Residential Efficient Water Heating ("REWH") Program; (5) Residential New Construction ("RNC") Program; (6) Residential Low Income ("RLI") Program; and (7) Energy\$Solutions for the Home ("ESH") Program.

In lieu of pursuing the continuation of the recovery of lost margins and shareholder incentives for its energy efficiency DSM programs through a surcharge mechanism,³ HECO requested approval in its rate case application for a proposed "DSM Utility Incentive".

According to the application, the purpose of the mechanism generally would be to provide a

² At the time HECO filed its application in the Rate Case Docket, as well as the time the Commission filed Order No. 21698 opening the EE DSM Docket, a decision and order had not been filed in the RCEA Program proceeding, Docket No. 03-0142. Subsequently, as previously discussed, on April 20, 2005, the Commission filed D&O 21756 denying HECO's request to implement the RCEA Program, without prejudice.

³ For HECO's initial energy efficiency DSM Programs, HECO was allowed to recover program costs, lost margins and shareholder incentives through the DSM Component of its IRP Cost Recovery Provision ("IRP Clause").

financial incentive to the utility to help ensure the success of the DSM programs by taking away the disincentives of DSM programs, and by aligning positive incentives with successful program delivery. In effect, the mechanism would recognize the energy efficiency services provided by HECO through the DSM programs and the shortfall in fixed cost contribution due to the energy reductions resulting from the DSM programs.

3. Energy Efficiency Docket

By Order No. 21698 ("Order No. 21698"), issued March 16, 2005, in Docket Nos. 04-0113 and 05-0069, the Commission: (1) separated HECO's requests for approval and/or modification of demand-side and load management programs and recovery of program costs and DSM utility incentives (collectively referred to as the "Proposed DSM Programs") from the Rate Case Docket, and opened this proceeding (the "Energy Efficiency Docket" or "EE DSM Docket") in which to consider these matters, and (2) determined the parties and participants for the Rate Case Docket and the newly formed Energy Efficiency Docket to address and examine the Proposed DSM Programs.

Order No. 21698 granted the Motions to Intervene for the Department of the Navy, on behalf of the Department of Defense ("DOD"), Rocky Mountain Institute ("RMI"), and Life of the Land ("LOL") in the Energy Efficiency Docket, and also granted the County of Maui's ("COM") Motion to Participate. By Order No. 21749, filed April 14, 2005, the Commission granted the Motions to Intervene for the Hawaii Solar Energy Association ("HSEA") and Hawaii Renewable Energy Alliance ("HREA"). By Order No. 21861, issued June 7, 2005, the Commission also made HELCO, MECO, Kauai Island Utility Cooperative ("KIUC") and The Gas Company, LLC ("TGC") parties to the Energy Efficiency Docket, but limited their participation solely to the issues dealing with statewide energy policies. By Order No. 21957,

filed August 3, 2005, the Commission dismissed as untimely the Motion to Participate or Intervene for the County of Kauai ("COK"), and the Motion to Intervene for Honolulu Seawater Air Conditioning, LLC. By Order No. 22029, issued September 14, 2005, the Commission made COK a participant, limited to issues of statewide energy policies.

The parties and participants were able to agree on a schedule, and all but one of the issues. By Order No. 22251, issued January 31, 2006, the Commission approved the proposed Prehearing Order submitted by HECO on October 7, 2005.

Under the agreed upon schedule, HECO informally provided to the parties/participants its Interim DSM Proposals by October 11, 2005. A Technical Consultant Meeting was held on November 2, 2005. The parties/participants provided informal comments to HECO on its Interim DSM Proposals by November 18, 2005.

On December 5, 2005, HECO filed the proposed interim modifications to its existing energy efficiency DSM programs (e.g., changes in customer incentive levels and program budgets, and modification of customer payback period), and also requested approval of a new interim DSM program (collectively referred to as HECO's "Interim DSM Proposals"). The proposed new DSM program was the Interim Energy Solutions for the Home Program ("Interim E\$H").

On January 9 and 10, 2006, RMI, the Consumer Advocate, DOD, HSEA and HREA filed comments on HECO's Interim DSM Proposals.⁴ On January 31, 2006, HECO responded to the comments.

On March 15, 2006, the Commission provided the parties/participants with a copy of a

⁴ The Consumer Advocate, RMI and HSEA generally supported approval of HECO's Interim DSM Proposals. HREA stated that it was "basically neutral regarding the merits of HECO's Proposed Interim DSM Programs."

report, dated March 3, 2006, entitled EPA Review of HECO Interim Demand-Side Management Proposals (Docket No. 05-0069) ("EPA Interim Report"), submitted to the Commission by the U. S. Environmental Protection Agency ("EPA"), the Commission's consultant to the proceeding, on HECO's Interim DSM Proposals. The EPA Interim Report provided comments that mainly addressed DSM program design issues, including aspects such as eligible measures, energy and demand savings estimates, program marketing and delivery mechanisms, and program budget assumptions. In its Conclusions and Recommendations, the EPA recommended that the Commission approve HECO's Interim DSM Proposals. On March 28, 2006, HECO filed a response to the EPA Report.

On April 4, 2006, April 26, 2006 and May 11, 2006, the parties/participants held settlement discussion meetings in an attempt to reach agreement or partial agreement on the issues for Commission review and approval, which would limit the issues that needed to be addressed in the parties' Final Statement of Positions ("FSOP").

On April 26, 2006, the Commission issued Interim Decision and Order No. 22420 ("Interim D&O 22420"). Interim D&O 22420 granted approval for HECO to implement its Interim DSM Proposals, directed HECO to respond to questions from the Consumer Advocate and EPA on HECO's Interim DSM Proposals, and ordered the discontinuation of the recovery of lost margins and shareholder incentives within thirty days of the date of the decision.

On May 15, 2006, HECO filed a Motion for Partial Reconsideration of Interim Decision and Order No. 22420. The Commission granted HECO's request for an extension of time in which to file the motion⁵, and granted HECO's request to schedule a hearing on the motion

⁵ Order No. 22468, issued May 16, 2006.

during the hearings in this docket.⁶ Oral arguments on the motion were held on August 28, 2006. By Order No. 22921, issued October 4, 2006, the Commission denied the motion.

On May 25, 2006, HECO filed a tariff adjustment to its IRP Clause, Commercial and Residential DSM Adjustments, to discontinue, in accordance with Interim Decision and Order No. 22420, the recovery of lost margins and shareholder incentives.

On June 1, 2006, Final Statements of Position ("FSOP") were filed by HECO, the Consumer Advocate, the DOD, KIUC, RMI, HREA, HSEA, LOL, and COM.

On July 26, 2006, the Commission issued the EPA's report entitled EPA's Comments on Docket No. 05-0069, For the State of Hawaii Public Utilities Commission. On August 22, 2006, responses to the EPA's July 26, 2006 report were filed by HECO, the Consumer Advocate, DOD, KIUC, COK, and HREA. On August 25, 2006, the Commission issued the EPA's response to the August 22, 2006 responses to the EPA's report.

On August 24, 2006, the Commission held a prehearing conference. On August 25, 2006, the Commission issued Prehearing Order No. 22803, which among other things, set forth the agreements reached and actions taken at the prehearing conference and set forth the terms that would control the hearing.

The hearings in this docket, which utilized a panel format and were moderated by Scott Hempling, were held from August 28 through September 1, 2006. Attached as an exhibit to this Opening Brief are the resumes of the witnesses that appeared on behalf of the Companies at the panel hearing.

On August 31, 2006, as part of the panel hearings in this docket, HREA Hearing Exhibit 2 was admitted into the record in this docket, which described various aspects of a proposed

⁶ Letter dated June 13, 2006.

Seawater Air Conditioning ("SWAC") district cooling system. On September 8, 2006, HECO submitted Information Requests ("IRs") regarding the HREA Hearing Exhibit 2 and the additional information that was provided by HREA to all parties via an email dated August 30, 2006. On September 22, 2006, HREA provided responses to IRs from LOL, HECO, and the Consumer Advocate. On September 29, 2006, HREA filed Errata Sheets Regarding Post-Hearing Information Requests from Life of the Land, HECO/MECO/HELCO, and the Consumer Advocate on HREA Hearing Exhibit No. 2, filed on September 22, 2006.

On October 3, 2006 a request for a Protective Order was filed with the Commission.

On October 6, 2006, (1) HECO filed its Statement of Position on HREA's Seawater Air Conditioning Project, (2) the Consumer Advocate filed its Comments on HREA's Sea Water Air Conditioning Proposal, (3) HREA filed its Supplemental Position Statement In Support Of HREA Hearing Exhibit No. 2, (4) LOL filed its Amended Final Statement of Position, and (5) the Commission issued Protective Order No. 22929.

On October 10, 2006, HREA filed its Supplemental Response to Post-Hearing Information Requests from LOL, HECO, and the Consumer Advocate on HREA Hearing Exhibit No. 2.

B. STATEMENT OF THE ISSUES

The issues and procedural schedule for Docket No. 05-0069 were established by Order No. 22251. The issues in this docket are comprised of two categories, including (1) issues dealing with statewide energy policy, and (2) issues dealing with HECO's Proposed DSM Programs.

1. Statewide Energy Policy Issues

- (1) Whether energy efficiency goals should be established and if so, what the goals

should be for the State;

(2) What market structure(s) is the most appropriate for providing these or other DSM programs (e.g., utility-only, utility in competition with non-utility providers, non-utility providers);

(3) For utility-incurred costs, what cost recovery mechanism(s) is appropriate (e.g., base rates, fuel clause, IRP Clause);

(4) For utility-incurred costs, what cost level is appropriate;

(5) Whether DSM incentive mechanisms are appropriate to encourage the implementation of DSM programs, and, if so, what is the appropriate mechanism(s) for such DSM incentives;

2. HECO's Proposed DSM Programs Issues

(6) Whether the seven (7) Proposed DSM Programs (i.e., the CIEE, CINC, CICR, REWH, RNC, RLI, and ESH programs), the RCEA Program, and/or other energy efficient programs will achieve the established energy efficiency goals and whether the programs will be implemented in a cost-effective manner;

(7) If utility-incurred costs for the Proposed DSM Programs are to be included in base rates, what cost level is appropriate, and what the transition mechanism for cost recovery will be until the respective utility's next general rate case;

(8) Whether HECO's proposed DSM utility incentive is reasonable, and should be approved, approved with modifications, or rejected;

(9) Which of the Proposed DSM Programs, the RCEA Program and/or other energy efficiency programs should be approved, approved with modifications, or rejected.

II. DSM PROGRAM GOALS

The first Statewide Energy Policy Issue is: Whether energy efficiency goals should be established and if so, what the goals should be for the State?

A. DSM PROGRAM GOALS

1. Energy Efficiency Goals

HECO supports goals for energy efficiency and has developed an estimate for the amount of energy efficiency that the Company intends to achieve on Oahu over a five-year action plan implementation period⁷, provided HECO receives approval to implement its proposed DSM programs, in order to meet its obligation to serve the community with reliable, cost-effective, electrical service. HELCO and MECO are in the process of developing their IRP plans and will develop DSM program and proposed energy efficiency goals as part of that process. HECO FSOP at 9; Tr. (8/28) 52-54 (Hee); HECO Hearing Exhibit A.

HECO's Hearing Exhibit A provided HECO's proposed DSM program goals (in terms of MW and MWh reductions). Tr. (8/28) 67-68, 215 (Hee). HECO's Hearing Exhibit A is attached as an exhibit to this Opening Brief. HECO's understanding is that the issue of statewide goals in this proceeding applies to energy efficiency only, as differentiated from load management (including demand response programs).⁸ HECO FSOP at 9-10. If the Commission decides that load management programs should be subject to goals, HECO would propose that they be developed in the IRP process in the same manner as was identified in HECO's FSOP (beginning

⁷ HECO IRP-3 Report, filed October 28, 2005, Docket No. 03-0253, also provides a 20-year assessment of DSM goals and impacts for the period 2005-2025.

⁸ Energy efficiency programs are programs that focus on reducing both energy and demand, while load management and demand response programs focus on achieving reductions in demand. HECO's CIEE, CINC, CICR, REWH, RNC, ESH, and RLI programs are examples of energy efficiency programs, while its RDLC and CIDLC programs are examples of load management programs. HECO FSOP at 9-10.

on 10, for energy efficiency program goals). Response to CA/HECO-IR-1.

For the HECO Companies, the DSM program goals should be stated as a percent of the maximum achievable potential ("MAP"), as the goals will refer back to a market potential study and to the efforts of the integrated resource planning group. Tr. (8/28) at 73-74 (Hee).

Greg Wikler, HECO's consultant, testified that using 80% of MAP as a basis for goals is reasonable. First, the MAP studies will be updated on a regular basis as part of the IRP process. In addition, the MAP studies will take into consideration the economic and technical analyses necessary to assess the viability of energy efficiency programs. Tr. (8/28) at 118, 120 (Wikler). (Updating the MAP study that was completed as part of HECO's IRP-3 could be performed in two to three months. Tr. (9/1) at 1075.)

Mr. Hee testified that HECO's energy savings goal is to achieve 80% of the energy MAP by 2010, which should be expressed in megawatthours. Tr. (8/28) at 41, 52-54, 73-74, 215 (Hee). The MAP includes freeriders. However, the utilities' energy efficiency goal should be 80% of MAP reduced by freeriders since it is net savings that provide the load reduction from the demand forecast that assists the utilities with serving projected customer demand.

The energy efficiency goal should also be expressed as the aggregation of all energy efficiency programs being implemented within each utility's service territory. Energy efficiency goals should be developed within each utility's service territory because if goals are set on a statewide basis, the identities and differences that exist in each utilities' service territory could be lost. Tr. (8/28) at 121 (Hee).

DSM programs achieve their energy savings and load reductions through the actions of customers. Setting the goals at the utility level in megawatt-hours and megawatts rather than at the DSM program level provides flexibility in customer choice and in the utilities' response to

those choices. (The energy efficiency goal could be stated in terms of a goal for the commercial and industrial sector and the residential sector. However, the goals should not be stated at the program level. Tr. (8/28) at 88, 155 (Hee).) If customers participate more readily in some programs than others, the goals should allow the utilities to take advantage of that response by moving its resources to those programs to acquire the savings. HECO FSOP at 14; Tr. (8/28) at 89-90, 155 (Hee).

Reasonable demand and energy savings goals for the performance of utility energy efficiency DSM programs are important because they can serve as a “yardstick” against which actual savings can be measured, and as an expression of the parties’ commitment toward improved energy efficiency. Reasonable goals, however, must (1) pertain to the intended objectives, (2) be achievable, and (3) be measurable. HECO FSOP at 10.

2. Principle Objectives

The principle objective is energy savings and peak demand reductions that are consistent with the utilities’ IRP Plans and with the State’s Renewable Portfolio Standards (“RPS”).⁹ In addition, the DSM programs should provide all classes of customers the opportunity to participate in the programs, thereby acknowledging that hard to reach customers should not be ignored. Further, the programs should be cost-effective, recognizing that this objective may sometimes be at odds with the previous objective of customer equity.¹⁰ HECO FSOP at 10; Tr. (8/28) at 39-40, 67-68 (Hee); Tr. (9/1) at 1074-75. At the hearing, Mr. Hee added an additional

⁹ HECO does not regard the RPS (or percentage of RPS) as a cap on the amount of energy efficiency savings that the Company needs to achieve. Rather, the Company is committed to pursuing energy savings and load reduction aggressively as demonstrated by its Interim DSM Proposal to ramp-up and expand its existing programs and add a new program that will result in greater levels of energy and demand savings. However, because earlier DSM efforts were able to take advantage of the most cost-effective projects (the “low hanging fruit”), HECO recognizes that this more aggressive stance will result in additional costs. HECO FSOP at 14.

¹⁰ Cost-effectiveness tests are discussed in Issue No. 6.

objective of accomplishing market transformation.

The energy efficiency DSM program goals should also be achievable, otherwise the goals quickly become irrelevant. MAP represents the maximum amount of energy efficiency that is obtainable from measures covered by the utilities' DSM programs. (The MAP refers to different levels of potential. The first level of potential is technical potential (which is the highest level of potential). Technical potential takes into consideration all of the available measures without regard to the amount of capital that is required. Technical potential does not take into consideration customer acceptance. Tr. (8/28) at 74 (Hee), 191-94 (Wikler). The second level of potential is economic potential, which takes into consideration the economics of the program. A measure that is available and effective but costs more than the benefits of the measure will have a low potential. The third potential is achievable potential. This potential takes into consideration customer acceptance of the measure. Tr. (8/28) at 75 (Hee).) In order to achieve the MAP the customer incentive in some cases is equal to 100% of the incremental cost of the more efficient technology. The MAP also assumes highly aggressive and costly advertising and marketing efforts¹¹. HECO FSOP at 10-11.

If cost (i.e., near term rate impacts) were not a consideration, then the amount of average and peak electric load reductions that could be achieved for each island would theoretically approach the MAP. However, the ability to achieve the MAP is constrained by the degree to which the DSM programs are accepted by the market. Added program expenses to overcome market barriers and increase market acceptance by raising customer incentives and extending outreach programs will help, but may not result in attaining this maximum upper boundary for energy efficiency and load reduction savings. Response to LOL/HECO-IR-2.

¹¹ Docket No. 04-0113 (HECO's 2005 test year Rate Case), HECO-1101 at 87.

The necessity of advertising and marketing efforts is a reminder that the achievement of load reductions through energy efficiency programs is a matter of customer choice. Customers have a variety of reasons to participate, or not participate, in energy efficiency. Thus, the utilities need to provide a portfolio of programs, procedures, incentives, and educational messages, to attract the customer's attention. Since the customer must in the end, install energy efficient measures in order to realize the savings, goals should recognize the uncertainty of customer response and be set at a level that is considerably lower than the MAP. HECO FSOP at 11.

3. Free-Riders

Free-riders are included in the amount of energy saved through energy efficiency that is eligible to be counted as contributing to the renewable portfolio standard. Free-riders are customers who would have installed energy efficiency measures even without the presence of the DSM programs. For the purposes of the RPS it is appropriate to include free-riders (i.e., the gross savings) because all of the energy savings, including free-riders, result in oil not consumed for electricity generation. Energy self-sufficiency is one of the primary objectives of the renewable portfolio standard. HECO FSOP at 13.

However, for the purposes of load reduction, the energy efficiency goal should be expressed net of free-riders (i.e., reducing by free-riders), since it is net savings that provide the load reductions from the demand forecast that assist the utilities with serving projected customer demand. HECO FSOP at 13-14; Tr. (8/28) at 226 (Hee).

B. DEVELOPMENT OF GOALS

Goals should be developed using the most recent market potential studies available for the service territories served by each utility, provided that the utilities were involved to a significant degree in the development of those studies. HECO's assessment of the potential for

DSM that can be accomplished on Oahu used the market potential study filed as HECO-1101 and HECO-1102 in HECO's 2005 test year rate case (Docket No. 04-0113). That assessment resulted in the expected energy and demand savings included in HECO's IRP-3 report. These estimated savings should be reasonable levels of achievement given the assumptions for the budgets, programs, and approval schedules made when developing the IRP Action plan. (The assessment of DSM resources for MECO and HELCO are currently underway in their respective IRP-3 planning processes). HECO FSOP at 11.

Since the IRP process is intended to be an open and comprehensive process, IRP can be the source for the megawatt-hour and megawatt levels of the energy efficiency goals. The use of the IRP process is advantageous because it:

- (1) Is open to, and considers the input of, many community groups, government agencies, and business organizations,
- (2) Examines the potential market for demand-side resources,
- (3) Determines whether the demand-side programs meet IRP objectives and are cost effective, e.g., pass the Total Resource Cost test, and
- (4) Compares both supply-side and demand-side resources to meet the projected electricity needs of the service territory. HECO FSOP at 12; see Tr. (8/28) at 41-42, 47 (Hee).

Utility efforts on behalf of energy efficiency are a key component of goal achievement. However, there are many other components that influence the achievement of an energy efficiency goal. These include (among others):

- (1) Government actions such as building codes, the building permitting process, and tax credits,

- (2) Energy prices and the level of the utility's avoided energy and capacity costs,
- (3) Health of the local economy,
- (4) Project timing and opportunities for retrofit applications, and
- (5) Participant costs to install energy efficient measures. HECO FSOP at 12.

C. LINKAGE TO GOALS DETERMINED BY OTHERS

HECO has supported the Hawaii Energy Policy ("HEP") Forum's 10-point plan which includes a HECO renewable portfolio standard that requires that 10% of electricity sales be met by renewables by 2010, 15% by 2015, and 20% by 2020. In the HEP Forum plan, renewables also include quantifiable energy efficiency kwh savings. The HEP Forum proposed that no less than 50% of the renewables would be classical supply-side renewables (e.g., wind, solar, biomass, and municipal solid waste, among others). HECO FSOP at 12-13.

The State Legislature recently passed S.B. 3185, S.D.2, H.D.2, C.D.1 (2006 Hawaii Legislature), which was signed into law by Governor Lingle on June 2, 2006 as Act 162. Act 162 also requires that no less than 50% of the renewable electrical energy that is generated to comply with the State's renewable portfolio standard be from classical supply-side renewable sources. The goals established in this docket should provide linkage to the legislative target for renewable energy kwh savings. HECO FSOP at 13.

D. RELATIONSHIP BETWEEN MARKET STRUCTURE AND GOALS

At the panel hearings in this docket, the Commission asked a question concerning the relationship between market structure and goals. See Tr. (8/28) at 1048 (Hempling). In response to the question, HECO testified that the Commission could establish goals without regard to the market structure. Following the establishment of the market structure, the goals could be adjusted, if necessary. See Tr. (8/28) 1049-51 (Hee).

III. DSM PROGRAMS

A. INTRODUCTION

1. Issue

The sixth issue is: “Whether HECO’s seven (7) Proposed Demand Side Management (“DSM”) Programs (i.e., the CIEE, CINC, CICR, REWH, RNC, RLI, and ESH programs), the Residential Customer Energy Awareness (“RCEA”) Program, and/or other energy efficient programs will achieve the established energy efficiency goals and whether the programs will be implemented in a cost-effective manner?”

The seventh issue is: “If utility-incurred costs for the Proposed DSM Programs are to be included in base rates, what cost level is appropriate, and what the transition mechanism for cost recovery will be until the respective utility’s next general rate case?” This issue is similar to the fourth issue: “For utility-incurred costs, what cost level is appropriate?”

2. DSM Programs Background

a. Existing EE Programs

HECO initially implemented five 5-year energy efficiency DSM programs, which were approved by the Commission in 1996 and for which HECO was allowed to recover program costs, lost margins and shareholder incentives through the DSM Component of its IRP Cost Recovery Provision (“IRP Clause”). The Commission approved one-year extensions (to December 31, 2001) of HECO’s Residential Efficient Water Heating (“REWH”) Program, its Residential New Construction (“RNC”) Program and its three Commercial and Industrial (“C&I”) DSM programs by Order No. 18208 (November 27, 2000) in Docket No. 94-0206, Order No. 18207 (November 27, 2000) in Docket No. 94-0216 and Order No. 18206 (November 27, 2000) in Docket Nos. 94-0010, 94-0011 and 94-0012 (Consolidated), respectively, and by Order Nos. 19019 and 19020, issued November 15, 2001, the Commission approved the

temporary continuation of HECO's five existing energy efficiency DSM programs, subject to certain conditions.

On May 31, 2000 and June 30, 2000, respectively, HECO filed applications requesting approval of (1) a new C&I DSM program, which would have consolidated the DSM measures in HECO's three existing C&I DSM programs, for a period of five years, and (2) a new Residential DSM program, which would have consolidated the DSM measures in HECO's two existing Residential DSM programs, for a period of five years. The applications also requested that the Commission approve recovery of program costs, lost margins, and shareholder incentives using the IRP Clause.

After the Consumer Advocate completed its review of the applications, HECO and the Consumer Advocate finalized letter agreements dated and filed October 5, 2001 (C&I DSM programs) and October 12, 2001 (Residential DSM programs), under which HECO's three existing C&I DSM programs and two existing Residential DSM programs would be continued until HECO's next rate case (which HECO committed under the letter agreements to filing within three years using a 2003 or 2004 test year) in lieu of HECO continuing to seek approval of new 5-year DSM programs. (HECO submitted two letter agreements for the Residential DSM programs - - one executed by all parties to the docket that addressed the issues raised by the Consumer Advocate, HSEA and LOL, and one executed by HECO and the Consumer Advocate that addressed the issues raised by the Consumer Advocate.) Under the agreements, any DSM programs to be in place after HECO's next rate case would be determined as part of the case.

By Order Nos. 19019 and 19020, issued November 15, 2001, the Commission approved the proposed agreements, subject to certain conditions and modifications. The Commission also reserved the right, upon its own initiative or upon motion, to reopen the dockets or open a

separate docket at any time to institute an investigation or other proceedings to ensure that the electric power consumers or ratepayers affected by the proceeding are protected and that the implementation of the parties' agreements are consistent with the Commission's IRP Framework.

Additional information for the C&I and Residential DSM programs was filed on December 14, 2001. HECO filed reports addressing the impact of Ordinance 01-47 and Ordinance 01-46 on December 28, 2001. Joint reports required by Order Nos. 19019 and 19020 were also filed.

On August 7, 2003 and August 12, 2003, HECO filed agreements with the parties to the stipulations, which modified the stipulations by delaying the required filing of a general rate case by approximately twelve months such that HECO would utilize a 2005 test year for the filing. (In order to comply with the stipulation, the general rate case application needed to be filed in the second half of 2004.) The terms and conditions of the stipulations, with the conditions imposed by the Commission's approval orders, remained generally unchanged, with the new agreements providing for: (1) temporary continuation of existing C&I and Residential DSM programs with such modifications as the Commission may, from time to time, approve or order, until the next rate case, and (2) ending of the current DSM programs as part of the next rate case, with HECO pursuing development of new and/or replacement DSM programs that will continue to provide ample opportunities to ratepayers to strive for energy efficiency, and with the new and/or replacement DSM programs that may be in place after the next rate case to be determined as part of that case. The Commission approved the new agreements by Order Nos. 20392 and 20391, issued August 26, 2003 in Docket Nos. 00-0209 and 00-0169, respectively.

HECO has implemented its existing energy efficiency DSM programs since 1996, and in

the 10 years through 2005 has been able to achieve energy savings of 1,201 GWh and demand reductions of 50 MW. During this timeframe, over 40,000 customer rebate applications have been approved resulting in customer rebates of over \$37 million, which has helped to facilitate investments of approximately \$185 million in energy efficient equipment. HECO's DSM programs have been successful, in part, because of the input from customers, vendors, government agencies, and interested community groups through the extensive integrated resource planning ("IRP") process. HECO's Response to EPA Report, filed March 28, 2006.

b. Existing Load Management Programs

HECO filed applications requesting approval of: (1) a Residential Direct Load Control ("RDLC") Program, on June 6, 2003 in Docket No. 03-0166, and (2) a C&I Direct Load Control ("CIDLC") Program, on December 11, 2003 in Docket No. 03-0415. The Commission approved (1) the RDLC Program, as modified by a stipulated agreement between HECO and the Consumer Advocate (filed June 30, 2004), by Decision and Order No. 21415 issued October 14, 2004, and (2) the CIDLC Program, as modified by a stipulated agreement (filed July 15, 2004), by Decision and Order No. 21421 issued October 19, 2004.

In D&O No. 21415, (Docket No. 03-0166, the RDLC Program) the Commission approved the Company's and Consumer Advocate's stipulation in its entirety. In the stipulation, the parties agreed that:

HECO will not seek to recover the following RDLC Program operation and maintenance costs through the IRP Cost Recovery Provision: (1) Direct Labor . . . (2) Advertising/Marketing . . . (3) Training; and (4) Materials and Miscellaneous. Instead, the Parties agreed to allow HECO to seek the recovery of these operation and maintenance costs in base rates in HECO's next rate case.

Similarly, in D&O No. 21421 (Docket No. 03-0415, the CIDLC Program) the Commission also approved the Company's and Consumer Advocate's stipulation in its entirety. In the stipulation,

the parties agreed that:

HECO will not seek to recover the following CIDLC Program operation and maintenance costs through the IRP Cost Recovery Provision: (1) Direct Labor . . . (2) Materials, Travel, and Miscellaneous. Instead, the Parties agreed to allow HECO to seek the recovery of these operation and maintenance costs in base rates in HECO's next rate case.

In its Application, filed November 12, 2004 in the Rate Case Docket, HECO proposed to modify the cost recovery mechanism for its two approved load management DSM programs including (1) the RDLC Program approved in Docket No. 03-0166 and (2) the CIDLC Program approved in Docket No. 03-0415, so that program costs would be recovered entirely through base rates, rather than partly through base rates and partly through the DSM Adjustment component of the IRP Clause.

With respect to the marketing of the programs, HECO proposed to increase its estimate of RDLC advertising expenses in its 2005 test year rate case by \$275,000 to reflect a full year direct mail campaign, telemarketing, and the addition of a customer recognition campaign to retain previously enrolled customers, and to add an advertising component (increasing test year rate case expenses by \$25,000) to the CIDLC budget included in base rates. The parties in the rate case stipulated that HECO could request approval for the \$300,000 through the Annual DSM Program Modification and Evaluation ("M&E") Report mechanism or in a program modification letter. HECO included the request in its M&E Report filed December 2, 2005.

Given its reserve margin shortfall situation, HECO has taken steps to accelerate its load management programs.¹² Participation in the RDLC Program was better than expected and continued as such throughout 2005. However, lower than expected customer acceptance of the CIDLC Program and efforts to seek agreement with the Hawaii State Department of Health

¹² Steps that were taken to accelerate the load management DSM programs were listed in the response to CA-IR-566, Docket No. 04-0113.

("DOH") to allow the use of customer-owned stand by generators¹³ led to load management impacts that were lower than was forecast. As HECO reported in its 2006 Adequacy of Supply ("AOS") Report filed March 6, 2006, since the load management programs are new, customer acceptance of the programs, particularly the CIDLC Program, has not been immediate. Business customers are understandably concerned about how service interruptions may affect their operations. HECO's account managers and technical engineers have been working with customers to discuss these concerns and meet customer needs.

At the panel hearings, HECO stated that it intends to file proposed modifications to its load management programs by the end of the year. Tr. (8/29) at 314 (Hee). As has been indicated in other filings, HECO intends to add a residential air conditioning load control component to its RDLC Program, and intends to offer expanded options, including a customer demand response component, in its CIDLC Program.

c. Proposed RCEA Program

HECO filed an application requesting approval of a Residential Customer Energy Awareness Pilot ("RCEA") Program on May 15, 2003 in Docket No. 03-0142. HECO requested recovery of program costs through its IRP Clause, but did not request recovery of lost margins or shareholder incentives for the proposed programs, which was proposed to be a pilot program. HECO filed its "Application/IR Responses Clarification," in the form of a revised application on October 7, 2004.

In its Application, filed November 12, 2004 in the Rate Case Docket, HECO proposed to

¹³ Gaining environmental approval to use customer owned stand-by generators to accomplish customer load reductions under the CIDLC Program took most of 2005 to complete. This effort resulted in the Generator Reporting Agreement and approval by DOH allowing customer stand-by generators to operate during a system emergency for up to 500 hours per year. This agreement, however, may not encompass every customer's generator permitting requirements and these requirements will continue to be addressed as necessary.

recover the program costs for then proposed RCEA Program in base rates. In addition, HECO proposed that the proposed RCEA Program duration be extended from two years to five years (to match the five-year duration for other programs) and that the cost recovery mechanism for the proposed program be modified so that the program costs would be recovered entirely through base rates (rather than partly through base rates and partly through the DSM component of the IRP Clause), if the program was approved in Docket No. 03-0142.¹⁴

At the time HECO filed its application in the Rate Case Docket, as well as the time the Commission filed Order No. 21698 opening the EE DSM Docket, a decision and order had not been filed in the RCEA Program proceeding. Following oral arguments on February 2, 2005, the Commission issued final Decision and Order No. 21756 ("D&O 21756") on April 20, 2005 denying the application (as revised on October 7, 2004) without prejudice, citing concerns raised by the Consumer Advocate.¹⁵ The Commission noted that (1) it "understands HECO's need and desire to educate its residential customers about energy matters, including conservation," and (2) "[a]n educational program, such as the RCEA Pilot Program may be better suited as one component of a portfolio of DSM measures, which may be considered in other proceedings before the Commission, if HECO so chooses." D&O 21756 at 9-11.¹⁶ D&O 21756 stated that

¹⁴ Since the RCEA Program was proposed as a pilot program, it was possible that the RCEA program might not continue beyond the two years included in the program application. The Company indicated that, if the program was only approved as a two-year pilot program in Docket No. 03-0142, and was not subsequently extended, then the Company would return the program cost of the RCEA Program included in base rates to residential customers during the time that the program was not in service through a temporary rate decrease created specifically for that purpose. HECO T-10 at 51.

¹⁵ The Consumer Advocate filed a Statement of Position on December 1, 2004, and HECO filed its reply on December 28, 2004. Although the Consumer Advocate opposed the application for the RCEA Pilot Program, the Commission noted in its D&O that the "Consumer Advocate makes clear that it does not dispute HECO's concern regarding its long-term ability to meet the growing energy demands of the residential customer class during the evening peak." D&O 21756 at 9.

¹⁶ The Commission stated that:

The commission understands HECO's need and desire to educate its residential customers about energy matters, including conservation. We further recognize that educating residential customers to encourage energy conservations and make them aware of (1) measures that can

“an educational program, such as the RCEA Pilot Program may be better suited as one component of a portfolio of DSM measures, which may be considered in other proceedings before the commission, if HECO so chooses.” D&O 21756 at 10.

When the Commission issued D&O 21756 denying HECO’s request to implement the RCEA Program, without prejudice, HECO proposed in its rate case to implement a customer awareness campaign instead. In order to fund the campaign, HECO increased the test year non-labor Informational Advertising expense by \$750,000. HECO RT-10 at 10; HECO-R-1001; response to CA-IR-533.b.

HECO worked diligently to develop its awareness campaign proposal once it received D&O 21756 on April 20, 2005, and HECO provided details of the proposal as soon as they were available. HECO raised and fully discussed the issue in its response to CA-IR-533 that was served on the Consumer Advocate and the DOD on June 8, 2005. The need for increasing the Informational Advertising expense was discussed again in the rebuttal testimony of HECO witness Alan Hee. HECO RT-10 at 10-12 and 21-23. HECO’s response to DOD-RIR-56 shows the advertisements. HECO’s responses to other information requests, such as CA-RIR-61, 62, 64, 65 and 69, and DOD-RIR-54, provided additional details.

The Consumer Advocate and the DOD disagreed with the \$750,000 increase to the non-labor Informational Advertising expense, and the Parties were not able to settle this issue in the rate case.¹⁷

be taken during the crucial 5:00 p.m. to 9:00 p.m. priority peak period; and (2) their impact on the need for future electrical generation may provide some relief to HECO in reducing peak loads, which ultimately will assist HECO in maintaining its generating system reliability guideline.

D&O 21756 at 9-10.

¹⁷ The Stipulated Settlement Letter stated that the Parties were unable to reach agreement on this issue and agree that the differences in positions can be adequately addressed in their respective post-hearing briefs, and further examination at the evidentiary hearings is unnecessary. In the rate case,

In this docket, the parties could not agree on whether issues 6 and 9 should include reference to an RCEA program,¹⁸ even though Order No. 21698, which initiated Docket No. 05-0069, included the RCEA Program in issue 2. HECO's position was that, if the Commission rejects or approves the conservation informational advertising program in the rate case on substantive grounds, then that issue will have been decided and should no longer be addressed in the EE DSM Docket. But if the Commission decides that the expenses for this program should not be allowed into rates because, procedurally, the Company proposed it too late in the rate case proceeding,¹⁹ then the Company's position would be that it should be addressed in the Energy Efficiency proceeding, since the merits of this issue had not been decided by the Commission. The Commission accepted HECO's version of the Prehearing Order.

Thus, in this proceeding, HECO has requested that, if the additional funds HECO proposed to spend for informational advertising in HECO's 2005 test year rate case are not considered in that case, the Commission approve the recovery of costs related to the RCEA Program in this docket. HECO FSOP at 80. However, pending the Commission's determination on this matter in the Rate Case Docket, HECO has not included any RCEA Program costs in this proceeding. HECO FSOP at 53.

d. HECO Rate Case Proposals/Bifurcation

In its application, filed November 12, 2004, in Docket No. 04-0113 (the "Rate Case Docket"), HECO requested the approvals necessary: (1) to implement seven new energy efficiency DSM programs, (2) to recover the program costs for the seven energy efficiency DSM

the other parties indicated that the issue should be addressed in this proceeding, and not in the rate case.

¹⁸ "RCEA Program" means generally a conservation informational advertising program rather than the RCEA Pilot Program proposed in Docket No. 03-0142 in particular.

¹⁹ The Commission stated that this was an issue in Interim Decision and Order No. 22050, issued September 27, 2005, in Docket No. 04-0113, at 10.

programs, a RCEA Program, and two load management DSM programs through base rates, (3) to implement and recover the costs of a proposed DSM utility incentive (given discontinuance of the current lost margin recovery and shareholder incentive mechanisms pursuant to the prior DSM stipulations) through base rates, and (4) to reconcile DSM customer incentives and the DSM utility incentive through a proposed DSM Reconciliation Clause.

The new energy efficiency DSM programs that HECO proposed in the Rate Case Docket included the: (1) Commercial and Industrial Energy Efficiency ("CIEE") Program, (2) Commercial and Industrial New Construction ("CINC") Program, (3) Commercial and Industrial Customized Rebate ("CICR") Program, (4) Residential Efficient Water Heating ("REWH") Program, (5) Residential New Construction ("RNC") Program, (6) Residential Low Income ("RLI") Program, and (7) Energy\$olutions for the Home ("ESH") Program.

In its 2005 test year rate case application filing, HECO provided extensive testimonies, exhibits and workpapers in support of its proposed DSM programs. In HECO T-10, Alan Hee described HECO's proposed DSM program costs, DSM utility incentive levels, the mechanisms by which program costs and utility incentives are recovered, and the DSM Reconciliation Clause. In HECO T-11, Gregory Wikler described HECO's proposed DSM Programs, their costs, energy, and demand savings impacts, and program cost effectiveness. In HECO T-12, Daniel Violette discussed the rationale for utility incentives for DSM, alternative incentive mechanisms, and comments on the Consumer Advocate's position on lost margins and shareholder incentives. In the HECO rate case proceeding, there were also filed responses to DSM-related information requests, a listing of which is provided in Exhibit 1 to HECO's FSOP.

On March 1, 2006, HECO informally provided the rate case DSM-related testimonies, exhibits, workpapers and responses to information requests to the parties/participants to the

Energy Efficiency Docket. The HECO rate case DSM-related testimonies, exhibits, workpapers and responses to information requests are voluminous. In the interest of administrative efficiency, HECO incorporated by reference its rate case DSM-related testimonies, exhibits, workpapers and responses to information requests.

e. **Energy Efficiency Docket and Interim Proposals**

By Order No. 21698, filed March 16, 2005, the Commission opened the Energy Efficiency Docket, separating HECO's requests for approval and/or modification of its energy efficiency and load management DSM programs and recovery of such program costs and DSM utility incentives from HECO's 2005 test year rate case, Docket No. 04-0113.

Under the schedule agreed upon by the parties/participants,²⁰ HECO was allowed to request approval for the implementation of the Interim DSM Proposals on an interim basis until a final decision and order is rendered.²¹ On December 5, 2005, HECO filed the proposed modifications to its existing energy efficiency DSM programs, and also requested approval of a new interim DSM program (collectively referred to as HECO's "Interim DSM Proposals").²² HECO requested interim approval for modifications to the existing CIEE, CINC, and CICR Programs, and a new Interim ESH Program.²³ HECO did not propose any modifications to its

²⁰ Under the agreed upon schedule, HECO first provided its Interim DSM Proposals informally to the parties/participants on October 11, 2005. The parties/participants provided informal comments to HECO on its Interim DSM Proposals by November 18, 2005.

²¹ The Prehearing Order explained that HECO's Interim DSM Proposals "will be its proposed DSM initiatives pending the resolution of the Energy Efficiency Docket, such as modifications to its existing energy efficiency programs (e.g., changes in customer incentive levels and program budgets, modifications to customer payback period) and/or new DSM programs (e.g., CFLs for the residential sector). For the Interim DSM Proposals, HECO will request Commission approval for their implementation on an interim basis until a final decision and order is rendered by the Commission in the subject proceeding. The Interim DSM Proposals are being proposed at this time to help HECO address its reserve capacity margins shortfall situation."

²² HECO submitted Excel spreadsheet files associated with the proposals on December 7, 2005.

²³ In effect, the Interim DSM Proposals represented a stepwise transition to the full-scale and complete DSM program portfolio envisioned in the Energy Efficiency Docket.

existing REWH and RNC Programs at that time, in part because a 30% federal tax credit for solar systems would be going into effect January 1, 2006, and was expected to increase participation in HECO's two existing residential energy efficiency programs.

In its Interim DSM Proposals, and in its response filed January 31, 2006 to the comments of some of the parties, HECO explained in detail its Interim DSM Proposals and their rationale and relationship to its reserve capacity situation. HECO indicated that its Interim DSM Proposals were necessary to provide HECO with additional megawatts of peak demand savings in order to help address its reserve capacity situation. Implementation of accelerated DSM initiatives were intended to help mitigate the shortfall by lowering HECO's peak demand, thereby increasing the reserve margin. The Interim DSM Proposals also offered enhanced energy savings opportunities to HECO's residential and commercial and industrial customers, and were intended to be a natural transition to the expanded portfolio of DSM programs that HECO is proposing in this proceeding.

The modifications to the existing C&I programs included increasing CIEE Program customer incentive levels to provide approximately 25% of the incremental cost of the more efficient alternative measures. Since the same customer incentives also would apply to the installation of these measures under the CINC Program, HECO also proposed to modify the CINC Program. The modification to the existing CICR Program consisted of eliminating the two-year payback requirement. In total, these C&I Program modifications were expected to reduce HECO's peak by an additional 1.4 MW beyond the reductions expected without these modifications. See Exhibit A to Interim DSM Proposals for details on the CIEE, CINC and CICR Program modifications.

HECO's filing indicated that it expected the Interim ESH Program to distribute

approximately 180,000 compact fluorescent lamps (“CFLs”) to residential customers, reduce HECO’s peak by 2.47 MW, reduce annual energy consumption by 13,245 MWh, and save customers \$35.87 annually on their electric bills. The Interim ESH Program is a subcomponent of HECO’s proposed full scale ESH Program, which is being proposed as part of the portfolio of DSM energy efficiency programs in the Energy Efficiency Docket. Exhibit B to HECO’s filing provided details on the Interim ESH Program. The Interim ESH Program could be easily implemented because HECO was already involved in a pilot CFL program (implemented without cost recovery) that was similar to the proposed program. In executing the pilot program, HECO worked with manufacturers, distributors, and retailers of CFLs, and with coupon redemption centers.²⁴ HECO planned to build upon these established relationships to quickly implement the proposed Interim ESH Program. It has also developed advertising and marketing themes and materials, which can be used or improved upon for the new program. In addition, the installation of CFLs in the home has the potential to result in significant load reductions (at 0.012 KW reduced per lamp).

A Technical Consultant Meeting was held on November 2, 2005. The intent of the Technical Consultant Meeting was to informally discuss issues such as statewide energy policy, HECO’s Interim DSM Proposals, DSM program design and incentive mechanisms, and recent developments in DSM program regulation and implementation.

On January 9, 2006, RMI filed comments on HECO’s Interim DSM Proposals. On January 10, 2006, the Consumer Advocate, DOD, HSEA and HREA filed comments on HECO’s Interim DSM Proposals. The Consumer Advocate, RMI and HSEA supported approval of

²⁴ As reported in its 2006 AOS Report, during the last quarter of 2005, HECO started its “See the Light, Make the Change” campaign, partnering with GE and the local GE distributor Webco Hawaii to encourage residents to buy and install 100,000 compact fluorescent light bulbs (CFL) by December 31, 2005. The promotion increased statewide sales of CFLs to over 100,000.

HECO's Interim DSM Proposals. HREA stated that it was "basically neutral regarding the merits of HECO's Proposed Interim DSM Programs." On January 31, 2006, HECO responded to the comments.

On March 15, 2006, the Commission provided the parties/participants with a copy of a report, dated March 3, 2006, entitled EPA Review of HECO Interim Demand-Side Management Proposals (Docket No. 05-0069) ("EPA Interim Report"), submitted to the Commission by the U.S. Environmental Protection Agency ("EPA"), the Commission's consultant to the proceeding, on HECO's Interim DSM Proposals.²⁵ The EPA Interim Report provided comments on HECO's Interim DSM Proposals, and stated that EPA and its consultants reviewed HECO's Interim DSM Proposals with a goal of providing comments that (1) may help to enhance the effectiveness of the proposed programs, (2) suggest ways to increase confidence in the projected energy savings and demand reduction, and (3) consider the cost effectiveness of the programs. EPA Interim Report at 1 & 3. The EPA comments mainly addressed DSM program design issues, including aspects such as eligible measures, energy and demand savings estimates, program marketing and delivery mechanisms, and program budget assumptions. In its Conclusions and Recommendations, the EPA recommended that the Commission approve HECO's Interim DSM Proposals. EPA Interim Report at 12. On March 28, 2006, HECO filed a response to the EPA Report.

On April 26, 2006, the Commission issued Interim Decision and Order No. 22420 ("Interim D&O 22420"). Interim D&O 22420 granted approval for HECO to implement its Interim DSM Proposals, on an interim basis, until the Commission issues a final decision in this docket. In addition, the Commission ordered that:

²⁵ The Commission provided the EPA Report to the parties/participants by transmittal dated March 15, 2006, with responses due March 28, 2006.

- (1) HECO provide the Commission and the Consumer Advocate with notice of any modifications made to the incentive levels for the Interim ESH Program within 30 days of such modification;
- (2) HECO provide the additional information requested by the Consumer Advocate and the EPA in their respective responses to HECO's Interim DSM Proposals;
- (3) HECO's request to extend its recovery of lost margins and shareholder incentives to the interim enhancements to its existing energy efficiency ("EE") demand-side management ("DSM") programs²⁶, in effect, was denied²⁷; and
- (4) HECO's recovery of lost gross margins and shareholder incentives for its DSM programs must be discontinued within thirty days of the filing of this Interim D&O, until further order by the Commission.

f. Revised/Updated Program Measures, Costs and Impacts

In general, the energy efficiency DSM programs include energy efficiency measures that electric utility customers can take to utilize electricity more efficiently (such as installing more efficient lighting fixtures or water heaters), and the customer incentives (or rebates) provided by the utility to encourage customers to implement the measures. The measures would be installed by the customers or vendors, and not by the utility itself. Other program components include eligibility and verification requirements, and assistance that can be provided by the utility in determining what measures to install. HECO provided a detailed description of the measures, customer incentives, eligibility requirements, customer assistance provisions, and other program components in its Phase II Study Exhibit HECO-1102 in Docket No. 04-0113 ("HECO 1102").

In its Final Statement of Position filed June 1, 2006 ("FSOP"), HECO provided updated

²⁶ HECO requested lost margins and shareholder incentives for the proposed modifications to its existing DSM programs, but not for its proposed Interim ESH Program, which would be a new program.

²⁷ Interim D&O 22420 had the effect of denying this request, although this request was not separately addressed in the ordering paragraphs.

DSM program measures, costs, energy and demand savings impacts,²⁸ benefit/cost ratios, and utility compensation amounts in Exhibits 7, 8, 10, and 12, which superseded the corresponding information that was included in its rate case application filing. HECO also updated certain DSM program design parameters.

In its response to CA/HECO-IR-9 filed July 1, 2006, HECO provided updated Exhibits 7, 8, 10 and 12. In discussions with RMI with respect to the updated exhibits, certain errors and omissions in the spreadsheets included in Exhibits 7, 10 and 12 to the IR response were identified. As a result, on August 24, 2006, HECO filed a revised response to CA/HECO-IR-9 and revised Exhibits 7, 10 and 12. The revisions are summarized on page 2 to the revised IR response. As a result of these revisions, Exhibit 13 to HECO's FSOP also needed to be updated. HECO filed workpapers to CA/HECO-IR-9 revised Exhibit 7 ("revised Exhibit 7") on August 28, 2006. The exhibits included in the August 24, 2006 revised response to CA/HECO-IR-9 supersede the previously filed versions of these exhibits.

During the course of the EE DSM Docket, HECO identified a number of revisions to the energy efficiency DSM program measures and incentives (as well as to certain other program components), based on the development of its interim DSM proposals, comments received from the other parties and EPA and updated information. Changes from the rate case proposals are detailed in revised Exhibit 8. See revised response to CA/HECO-IR-9, filed August 24, 2006 ("revised Exhibit 8") at 10. Revised Exhibit 8 also identifies changes in the estimates with respect to first year program participation (id. at 11-17), impact by program measure (id. at 18-22), and customer incentive and program implementation costs (id. at 23-31).

²⁸ For example, energy rates used to estimate customer bill savings were updated to reflect the more recent fuel oil price projections shown in Exhibit 12. Since the model only accepts one energy rate per program, the updated energy rates reflect \$60/bbl LSFO fuel.

g. EPA Comments

EPA's report entitled "EPA Comments in Docket No. 05-0069 for the State of Hawaii Public Utilities Commission" ("EPA Report") was filed July 26, 2006. The EPA Report concluded that HECO's "proposed programs are generally well designed and are cost-effective based on HECO's assumptions." EPA Report at 18. The EPA Report also provided comments on specific DSM programs, to which HECO provided responses, as referenced in the following sections of this brief.

h. EE Panel Hearings

Issues relating to the appropriate goals for the EE DSM Programs, including the maximum achievable potential, were addressed on the first day of the panel hearings. Program design and cost-effectiveness issues were addressed on the second day of the hearings.

3. Design of DSM Programs

Global Energy Partners, LLC ("Global") developed two studies that formed the basis for HECO's DSM program design. The first study, "Assessment of Energy Efficiency and Demand Response Potential," assessed the Maximum Achievable Potential ("MAP") for DSM in HECO's service territory. See HECO-1101.²⁹ The second study, "Assessment of Hawaii's Energy Efficiency and Demand Response Potential – HECO Phase II Study," defined the programs that could potentially realize a portion of that potential and then estimated the impacts, expenditures, and cost-effectiveness for each program. See HECO-1102. Both studies were conducted on behalf of HECO to explore the potential of DSM for its IRP-3 resource plan.

The first study relates to a joint effort that was conducted by Global, under the direction of Vice President Gregory A. Wikler, for HECO and its two subsidiary utilities MECO and

²⁹ HECO-1101 contains the main report from the Phase I study. A number of appendices that are referenced in the study were not included in HECO-1101 due to their large volume, but were made available upon request.

HELCO. This study, referred to as the Phase I Study, was an assessment of energy efficiency achievable potential for the three islands that these utilities serve – Oahu, Maui and Hawaii.

The Phase I Study was designed to address various technical topics related to energy efficiency program planning where parameters are common within a geographical region such as the State of Hawaii. See HECO's 2005 test year rate case direct testimony ("HECO T-11") at 5.

The Phase I study (with respect to HECO) found that, even with HECO's energy efficiency program accomplishments, significant potential still exists for additional energy savings on Oahu. These energy savings can best be realized through a major expansion of HECO's energy efficiency DSM program efforts, which will necessitate that HECO expand its existing DSM program portfolio to include previously underserved markets for energy efficiency. HECO T-11 at 5.

For example, research from the Phase I study revealed that significant potential lies in the lighting market in the residential sector. In addition, the multi-family market has a significant potential that has not been targeted in past program efforts. The commercial heating ventilation and air conditioning ("HVAC") market also appears to hold significant potential for energy efficiency. HECO T-11 at 5.

It is fair to assume that the energy efficiency potential identified in the Phase I study can be economically achieved. A conservation supply curve assessment revealed that over three-quarters of HECO's MAP could be obtained for under 10 cents per kilowatt-hour, levelized over the lifetime of the measures. HECO T-11 at 6.

Savings impacts were estimated and validated relative to HECO's past program accomplishments by utilizing an engineering simulation model known as the Building Energy Simulation Tool ("BEST"). The BEST model simulates energy loads for specific types of

buildings and energy efficiency measures using Oahu-specific parameters such as building size, the age of the building, and historical weather. Once BEST runs were completed, the savings results were compared with HECO's reported savings from its recent evaluation reports submitted to the Commission. As necessary, adjustments were made in the savings calculations to more accurately reflect actual conditions. HECO T-11 at 6.

If cost (i.e., near term rate impacts) were not a consideration then the amount of average and peak electric load reductions that could be achieved for each island would theoretically approach the MAP. However, the ability to achieve the MAP is constrained by the degree to which the DSM programs are accepted by the market. Added program expenses to overcome market barriers and increase market acceptance by raising customer incentives and extending outreach programs would help, but may not result in attaining this maximum upper boundary for energy efficiency and load reduction savings. Response to LOL/HECO-IR-2.

The study Phase II Study referenced in HECO-1102 was an assessment of energy efficiency program potential that was specific to HECO. It was the next step in the energy efficiency planning process that HECO established for development of its next generation of energy efficiency programs. There were four objectives in the Phase II Study, each of which is addressed in significant detail in HECO 1102:

- (1) To identify new programs that HECO could implement to increase its acquisition of DSM energy and demand reductions;
- (2) To develop descriptions and designs for each program identified;
- (3) To develop projected impacts and budgets associated with each program; and
- (4) To conduct a cost-benefit analysis in order to obtain an indication that the proposed programs are cost-effective.

HECO T-11 at 6-7.

The major findings from the Phase II energy efficiency program plan are highlighted

below. Drawing upon a number of information sources, the Phase II energy efficiency effort resulted in a portfolio programs. These information sources included three elements:

- (1) HECO's five existing DSM energy efficiency programs;
- (2) HECO's then pending DSM program applications with the Commission for the RCEA, RDLC, and CIDLC Programs; and
- (3) Benchmark experience from other utility energy efficiency program efforts.

HECO T-11 at 7.

Global also considered the input from the HECO IRP-3 Demand-Side Technical Committee process conducted in early 2004. Mr. Wikler was a main participant in several meetings of the IRP-3 Demand-Side Technical Committee. Generally, the feedback and suggestions that came from key stakeholders represented at those meetings were incorporated into the program designs outlined by Global. Copies of all of the presentations that were made to the Demand-Side Technical Committee are included in HECO-1102. See response to CA-IR-325.c, Docket No. 04-0113 (IRP-3 Demand-Side Technical Committee).

The projections used in IRP-3 differed from the Phase II results only with respect to the two load management programs. The impact and program cost estimates for the energy efficiency programs were the same. In both the Phase II study and IRP-3, the CIDLC and RDLC programs were assumed to be implemented in 2004. However, in IRP-3, the implementation of the two programs was accelerated based on the load management program applications filed with the Commission in 2003. In addition, the central air conditioning direct load control component of the RDLC Program was eliminated from the program submitted for the IRP-3 process. The overall result was that the estimated incremental impact in Year 2 was greater for IRP-3 than in the Phase II study. Furthermore, as a consequence, the IRP-3 program costs were higher than in the Phase II study. HECO T-11 at 8.

Based on the various assessments of energy efficiency programs for HECO, Global offered the following conclusions:

- (1) Significant potential exists for energy efficiency on Oahu;
- (2) Tapping that potential will require experience and hard work since much of the savings lies under the surface and requires extra effort to realize; and
- (3) The Phase II study leaves little doubt that HECO is in a strong position to expand its energy efficiency programs to meet this potential.

HECO T-11 at 87.

In its FSOP filed June 1, 2006, HECO updated certain DSM program design issues. The changes made to HECO's DSM program assumptions, including assumptions as to participation, measure unit level impacts, and line item expenses, were identified in Exhibit 8. Exhibit 9 included additional information requested by the Consumer Advocate and the EPA in their respective responses to HECO's Interim DSM program proposals as ordered by the Commission in Interim D&O No. 22420. HECO FSOP at 43.

4. DSM Program Incentives

Customer incentives help to reduce the cost of a participant's investment in a particular DSM measure, and also provide credibility to DSM measures that can increase customer acceptance of what may be a new technology for the customer.

a. Development of Incentives

In determining the level of the customer incentives for various DSM measures, HECO takes into account the level of savings for a particular measure and the length of persistence of the savings. This level of energy and demand savings is then multiplied by avoided energy and capacity costs to determine the value of the savings. Once the value of the savings is known, HECO determines levels of customer incentives that are intended to balance the benefit of the

savings with the cost of promoting the technology.³⁰

HECO typically formulates its rebates based on levels sufficient to encourage customers to adopt demand-side management measures. The level of incentive also should be commensurate with the value of the savings the DSM measure provides. In addition, HECO adjusts the incentive level in order to help maintain the cost-effectiveness of the program. See response to HSEA/HECO-IR-1.

Ratepayer funded DSM programs need to strike a balance between offering customer incentives to motivate customers to install energy efficient measures and/or adopt new technologies versus overpaying incentives and/or providing incentives to customers who would have installed the energy efficiency measure even without a utility DSM program. HECO qualitatively takes into account customer equity considerations by designing DSM programs that offer opportunities for the entire spectrum of its customer base to participate. A careful balance needs to be struck between this objective and a hypothetical example where a potential project could offer significant energy and demand savings, but could also meet the classic definition of a free-rider. Consideration must certainly be given to managing the level of free-riders and the related incentives paid to them. Response to HREA/HECO-IR-8.

As a way of expressing the magnitude of the incentive, customer rebates are often stated as a percentage of the customer's incremental cost for installing the energy efficiency measure. The level of incentive varies by program and is determined based on HECO's past experience in implementing the various programs combined with industry benchmark experience. Below is a listing of the rebates proposed in this docket expressed as a percentage of the incremental cost to install the measures covered by each program.

³⁰ It should be noted that the balancing process is not an exact science, and rebate levels may be changed from time to time based on experience and market conditions.

CIEE	25%
CINC	23%
CICR	10%
ESH	33%
REWH	42%
RNC	48%
RLI	100%

See response to HREA/HECO-IR-4.

b. Cap on Customer Incentives

HECO proposes to increase the maximum single customer rebate limit for the CIEE, CINC and CICR programs from \$250,000 to \$350,000. This increase is appropriate because the lower original maximum limit was developed when program implementation was just beginning in the mid-1990s. Based on actual inflation and the likelihood of large projects in the future, HECO requests that the maximum single customer rebate limit be increased to \$350,000. HECO FSOP at 43-44; HECO T-11 at 14.

c. Impacts

The first-year energy and demand reduction estimates (net of free-riders) for the DSM programs are as follows:

- (1) DSM Program Energy Reduction: 54.75 GWh (gross generation level)
51.2 GWh (net-to-system level)
- (2) DSM Program Demand Reduction: 19.6 MW (gross generation level)
18.3 MW (net-to-system level)

See CA/HECO-IR-9 revised Exhibit 10 ("revised Exhibit 10").

Annualized First-Year Impacts for Measures Installed in 2006

Program	2006 ²	
	Net System Energy Savings ¹ (MWh)	Net System Peak Demand Savings ¹ (MW)
1. CIEE	15,266	2.3
2. CINC	5,823	0.9
3. CICR	9,583	1.2
4. ESH	16,194	4.1
5. REWH	2,746	0.6
6. RNC	2,542	0.8
7. RLI	2,633	0.6
8. RDLC	0	6.2
9. CIDLC	0	3.0
Total	54,788	19.6

¹ Impacts are expressed at the gross generation level and are net of freeriders. Figures based on revised Exhibit 10, filed August 24, 2006.

² Assumed that the programs were approved and implemented in January 2006.

For the first five years, the estimated energy and demand reduction savings for the nine programs are as follows:

Cumulative Annualized Impacts for Measures installed in 2006 and thereafter

Program	Net System Energy Savings ¹ (MWh)				
	2006	2007	2008	2009	2010
1. CIEE	15,266	30,532	45,799	61,065	76,331
2. CINC	5,823	11,646	17,469	23,292	29,115
3. CICR	9,583	19,166	28,749	38,332	47,915
4. ESH	16,194	26,133	32,204	38,274	42,468
5. REWH	2,746	5,492	8,238	10,984	13,730
6. RNC	2,542	5,893	8,267	10,641	13,015
7. RLI	2,633	5,267	7,900	10,533	13,166
8. RDLC	0	0	0	0	0
9. CIDLC	0	0	0	0	0
Total	54,788	104,130	148,626	193,122	235,741

Program	Net System Peak Demand Savings ¹ (MW)				
	2006	2007	2008	2009	2010
1. CIEE	2.3	4.6	6.9	9.1	11.4
2. CINC	0.9	1.7	2.6	3.5	4.4
3. CICR	1.2	2.5	3.7	5.0	6.2
4. ESH	4.1	6.9	8.8	10.6	12.1
5. REWH	0.6	1.3	1.9	2.5	3.2
6. RNC	0.8	2.0	3.0	4.0	5.0
7. RLI	0.6	1.2	1.8	2.4	3.0
8. RDLC	6.2	11.0	14.5	14.7	14.7
9. CIDLC	3.0	11.3	17.5	24.6	26.0
Total	19.6	42.5	60.6	76.3	85.9

¹ Impacts are expressed at the gross generation level and are net of freeriders. Based on revised Exhibit 10, filed August 24, 2006.

Note: Assumed programs were approved and implemented in January 2006.

Unless otherwise stated, program impacts are stated at the gross generation level, net of free-riders. (As explained below, free-riders are participants in the Company's DSM programs who would have installed the DSM measures anyway even without receipt of the customer incentives.) The program savings reported represent annualized savings for measures installed during the year or period. See responses to DOD/HECO-IRs-1-12, 13, 15.

In responses to IRs in the rate case, HECO provided detailed information as to:

- (1) how KW impacts are adjusted for their coincidence with HECO's peak;
- (2) how kwh impacts are adjusted for system losses;
- (3) how the net-to-gross ratios adjust the impacts of the DSM programs by netting out the effects of freeriders;
- (4) how HECO tracks the monthly quantity of individual measures installed (i.e., light fixtures, motors, etc.); and
- (5) how HECO calculates the decay rates for energy and capacity savings resulting from the DSM measures installed in each program.

See responses to CA-IRs-395, 396, 397, 405 and 410 in Docket No. 04-0113.

HECO originally started its DSM program in 1996 with engineering estimates of the kW

impacts of each DSM measure promoted including its coincidence with HECO's peak. (See Demand-Side Management Resource Assessment Final Report filed in HECO's initial IRP Plan, Volume 6, filed July 1, 1993, Docket No. 7257.) For residential measures these impacts and coincidence factors also varied by single family or multi-family end use and by new construction or existing construction. In the commercial and industrial market segment the impact of each DSM measure also varied by the business structure where it was installed. HECO used the load profiles from twelve different commercial and industrial business types, e.g., offices, warehouses, retail, education, hotel/motel and miscellaneous commercial, to estimate the effects of different DSM measures on both the impacts and the coincidence factors.

HECO has conducted three complete impact evaluations, filed in its Annual Program Modifications and Evaluation Reports ("M&E Reports"), where the impacts and coincidence with HECO's peak was actually measured. A sample of projects from the years 1996 and 1997 was actually metered in the first impact analysis, filed in HECO's M&E Reports in 1998 and 1999. The second impact evaluation covered projects installed in the years 1998 and 1999. The individual reports from the second impact evaluation were filed in HECO's M&E Reports in 2000 and 2001. HECO's third impact evaluation was filed in the 2004 M&E Report, and included metered results from projects installed in 2001 through 2003. Statistical analysis was used to apply the results of the metered data of the sample groups to the overall population of participants in HECO's DSM programs. Using this method, the impact on HECO's peak of each measure and its implicit coincidence factor was actually measured through onsite metering. However, not all measures in all twelve commercial market segments could cost-effectively be metered. Therefore, in the cases where a DSM measure was installed but not specifically metered in one commercial market segment, the results of the metered data from another market

segment were adjusted by using the relationship of original load profiles from the twelve different market segments to determine the impact on HECO's peak of the measure in these market segments. Response to CA-IR-395, Docket No. 04-0113.

HECO calculates the decay rates for energy and capacity savings resulting from the implementation of DSM measures based on the life expectancies of the measures installed in each program. For example, in the REWH program the two main DSM measures being installed are solar water heating systems with a life expectancy of fifteen years and high efficiency electric water heaters with a life expectancy of ten years. Consequently, the energy and capacity impacts will decay in the eleventh year by the amount of impacts resulting from the number of high efficiency electric water heaters installed in the program in the current year. The life expectancy of each DSM measure was based on industry experience and introduced to all parties in HECO's IRP-1, Demand Side Management Report, Volume VI, Appendix A, Technology Assessment Sheets, filed July 1, 1993, Docket No 7257. Response to CA-IR-410.

d. Free-Riders

"Free-riders" are the customers who participate in a DSM program and receive the financial incentive, but would have installed the DSM measure even if the utility did not have the DSM programs. See HECO T-11 at 4. Another term for this is naturally occurring conservation. Even without utility sponsored DSM programs, some customers would purchase and install energy efficiency measures. A well designed and implemented DSM program will encourage a greater number of customers to install these measures, but some of the measures would have been installed without the program. Therefore, when calculating the net benefits of the DSM programs, the impacts of the programs are reduced by the effect of customers that would have installed the DSM measures even without the existence of the programs. Response to CA-IR-

397, Docket No. 04-0113.

HECO's evaluation consultant, KEMA, Inc., has conducted three cycles of DSM program impact evaluations which assess individual DSM measure energy and demand savings and the level of free-ridership. HECO will proceed with its third net-to-gross study following the Consumer Advocate's current intention not to comment on the net-to-gross survey instrument. Response to HECO/CA-FSOP-IR-123. This net-to-gross study will assess the level of free-ridership for measures installed in program years 2005 through 2007. Response to RMI/HECO-IR-1.

A table included in the response to CA-IR-313, Docket No. 04-0113, lists the assumed free-rider rates for each of the programs. For HECO's existing programs, free-rider rates were derived from the 1998-1999 Impact Evaluation Reports.³¹ For two of the new programs (RLI and ESH), the free-rider rates were derived from industry experience.³²

e. **Enhanced DSM Program Impacts**

HECO projects substantial increases in the DSM program impacts due to the proposed enhancements to the existing energy efficiency programs, the new energy efficiency programs that are being proposed, and the proposed enhancements to the load management programs.

HECO T-11 at 10.

³¹ The 1998-1999 CIEE and CICR Programs Impact Evaluation Report was filed in a separate letter dated January 2, 2001 in Docket Nos. 94-0011 and 94-0012. The 1998-1999 CINC, REWH and RNC Programs Impact Evaluation Reports were filed as attachments to the November 30, 2001 Annual Program Modification and Evaluation Report in Docket Nos. 94-0010, 94-0011, 94-0012, 94-0206 and 94-0216.

³² For the RCEA program the free rider rates for both energy and demand are "not applicable" because the Company does not have an initial estimate of energy or demand impacts for the program. For the CIDLC and RDLC programs the free rider rates for the energy impacts are "not applicable" because the Company will not be claiming any energy impacts for DSM utility incentive purposes. The CIDLC and RDLC program free rider rates for demand impacts are assumed to be zero because the experience of other utilities who have implemented similar types of programs has been that without a utility interruptible or direct load control program customers would not consistently and reliably interrupt their loads.

It is reasonable for HECO to pursue an expanded portfolio of energy efficiency programs at this time. With evidence of strong support from the local community and the benefit of a national trend toward expanded DSM, now is a perfect time for HECO to expand its program offerings. The Company will work effectively with local partners to offer new and expanded programs with the confidence that greater amounts of data are available from national sources to best understand the newly targeted market segments and end-uses.

f. Reserve Margin Shortfall Situation

In its report, EPA noted that: "It is important to target end uses that will aid with the immediate need for preserving reserve capacity." EPA Report at 17. In the CIEE Program, 9 of the 12 measures focus on lighting and are expected to obtain 56% of the program's total energy savings and 58% of the total peak demand savings. In the CINC Program, 7 of the 10 prescriptive measures target lighting and are expected to capture 53% of the program's total energy savings and 48% of peak demand savings. Historically, lighting measures have represented about a third of the energy savings for the custom component of the CINC program. HECO also plans to file a modification to the current RDLC program to add the load control of air conditioners to the program, which will help to achieve additional peak demand savings.

Given its reserve margin shortfall situation, HECO attempted to accelerate the enhanced DSM programs as much as possible, while still complying with mandated regulatory and planning processes.³³ The programs were developed in the on-going IRP-3 process.³⁴ The entire

³³ Steps that were taken to accelerate the energy efficiency DSM programs were listed in the response to CA-IR-567, Docket No. 04-0113.

³⁴ HECO's third cycle of IRP resulted in the enhanced and expanded portfolio of programs that were submitted in HECO's 2005 rate case and that are under review in the Energy Efficiency Docket. (HECO's IRP-3 Report was filed with the Commission on October 28, 2005, Docket No. 03-0253.) This full complement of DSM programs was intended to address energy efficiency and load management for all classes of commercial and industrial and residential customers. HECO's

process of developing the changes to HECO's portfolio of programs began nearly two years earlier with the initiation of a DSM potential study in July 2003 and the organization of a DSM Technical Committee under IRP auspices in December 2003. The DSM Technical Committee provided valuable input into the design of the DSM programs. The last meeting of the Committee was held on April 21, 2004 and culminated in the portfolio of 10 DSM programs. They were fully documented and filed with HECO's rate case filed in November 2004, as required by HECO's Commission-approved stipulations with the Consumer Advocate (for the C&I DSM programs) and with the Consumer Advocate and other parties (for the Residential DSM programs). HECO sought to have the five existing energy efficiency programs with enhancements and three additional programs bifurcated from the rate case and approved by the Commission on an accelerated schedule, so that an increased rate of acquisition of peak reduction benefits from the eight programs could begin in mid-2005.

When bifurcation resulted in a separate EE DSM Docket, and did not result in an accelerated schedule for the complete DSM proposal, HECO proposed a schedule that would permit it to submit the Interim DSM proposals.

5. DSM Program Costs

a. DSM Program Cost Estimates

The fourth issue is: "For utility-incurred costs, what cost level is appropriate?"

The updated first-year program expense estimate for the seven energy efficiency DSM programs is \$14,291,433.³⁵ The updated expense estimate for the two load management programs for the same year is \$5,404,817. The total expense estimate for the 9 DSM programs

Response to EPA Report, filed March 28, 2006. See HECO's Response to EPA Report, filed March 28, 2006.

³⁵ The exhibits assumed that the first year for the new programs would be 2006.

for the same year is \$19,696,250. First-year and future-year costs are shown in revised Exhibit 7.³⁶

The costs for the energy efficiency DSM programs include the costs of (1) customer incentives (i.e., “rebates”), (2) direct labor, and (3) outside services. For each existing and proposed DSM program, services are and will be delivered directly by HECO personnel and supported by third-party service providers under contract to HECO. All DSM programs are and will be managed by HECO personnel. Third-party services are rendered for services such as maintaining the computer software that tracks program performance, evaluation, legal, third-party engineering reviews, preliminary energy assessments, feasibility studies, design assistance, advertising, training, temporary help, equipment installation, solar inspections, and paging services. See response to CA-IR-328.a, Docket No. 04-0113.

The costs for the load management programs include the costs of (1) customer incentives, (2) direct labor, and (3) outside services. Outside services include implementation, tracking, evaluation, advertising, and administrative/miscellaneous costs.³⁷

The costs for each of the nine programs also are shown separately, by cost component, in revised Exhibit 7.³⁸ The “first-year” expense estimates for each of the nine programs are as follows:

(1) CIEE	\$3.4 million
(2) CINC	\$1.6 million
(3) CICR	\$1.7 million

³⁶ The exhibits assume that the new programs continue for 20 years in order to compare costs and benefits for the 20-year planning period used in calculating the benefit/cost test ratios.

³⁷ The list of “Outside Services” in HECO’s 2005 DSM Budgets contained in the 2005 A&S Report Attachment B is slightly different; it includes: Implementation, Tracking, Evaluation, and Feasibility Studies.

³⁸ The unit costs for each cost component were assumed to escalate by 3.8% per year in estimating the costs for future years. In the revised exhibit, an adjustment is made to the total cost estimates for future years to reflect a lower assumed unit cost escalation rate of 2.2%.

- (4) REWH \$2.7 million³⁹
- (5) RNC \$2.0 million
- (6) RLI \$0.9 million
- (7) ESH \$1.9 million
- (8) CIDLC \$1.7 million
- (9) RDLC \$3.7 million

See revised Exhibit 7.

In the revised exhibits, for illustrative purposes, HECO also included an estimated cost for utility compensation (based on Alternative No. 2, as proposed by HECO on page 79 of its FSOP) in the energy efficiency DSM program cost estimates.⁴⁰

The DSM Program cost estimates were originally derived for and explained in the rate case filing in Docket No. 04-0113. See HECO T-11; HECO-1102. The expense estimates were updated and revised in HECO's FSOP. In addition, a number of revisions were made (and explained) in the August 24, 2006 filing that corrected the cost-effectiveness tests.

i. Rate Case DSM Program Estimates

In HECO T-11, HECO requested approval of ten DSM programs (eight energy efficiency programs and two load management programs) with a 2005 test year expense estimate of \$21,454,600 to achieve 48.6 GWh of annualized energy savings (at the customer level) and 19.6 MW of load reduction (at the net-to-system level). The \$21,454,600 amount included \$2,138,500 for the proposed RCEA Program. In rebuttal testimony, HECO substituted a request to increase its test year expense estimate for informational advertising in place of the RCEA Program as the result of the Commission's Decision and Order No. 21756, filed on April 20,

³⁹ Although it was not originally reflected in Exhibits 7 and 8, the increase in the solar water heating customer incentive to \$1000 from \$750 in the existing REWH and RNC Programs is reflected in the revised exhibits.

⁴⁰ Alternative No. 2 was one of the three utility compensation proposals being offered by HECO in this docket.

2005, which rejected the RCEA Program, without prejudice. The resulting test year expense estimate for the remaining nine DSM programs was \$19,316,100, including base DSM program expenses that were eventually included in the test year expenses. HECO FSOP at 41.

ii. FSOP Cost Estimates

HECO updated its DSM program expense and impact estimates for its FSOP to:

- (1) reflect Consumer Advocate and EPA comments;
- (2) recalibrate program performance and costs to reflect recent program performance;
- (3) reflect a refinement of assumptions involving customer participation by measure; and
- (4) reset the start year for the new programs and enhancements of existing programs to the beginning of 2006 (in the test year they were assumed to begin in 2005).

HECO FSOP at 43.

In the FSOP, DSM program costs for the first year of implementation (2006) for the seven energy efficiency programs and two load management programs were assessed to be \$19,096,200, to achieve energy savings of 54.8 GWh at the net-to-system level (52.1 GWh at the customer level) and 19.6 MW at the net-to-system level, as shown in Exhibit 7. The estimated program costs for the seven energy efficiency programs were \$13,691,400, to achieve load reductions of 10.5 MW. See HECO FSOP at 42.

First year program costs for the energy efficiency programs decreased in the FSOP by about \$2 million from the rate case estimates due to a drop in estimated customer incentive payments for the CICR and ESH Programs. The reduction in CICR customer incentives of approximately \$1.1 million was due to the removal of certain customized measures, which were being proposed as new prescriptive measures under the CIEE program. (In error, those measures were not removed from the CICR program budget even though they were added to the CIEE program in the rate case.) The reduction in ESH customer incentives of approximately \$900,000

was due to a lower estimate of number of participants in the air-conditioning, ceiling fan and equipment servicing components of the program. HECO FSOP at 42-43.

The load management program expenses increased by about \$2 million due to increased program implementation costs resulting from the planned additions of a demand load response component to the CIDLC program and new customer segments for direct load control. As stated at the panel hearings, HECO planned to file these modifications to the load management programs with the Commission later this year. The amount of customer incentives was reduced from the test year estimate to account for the ramping effect of new program participants. Incentive payments are made only after the new participants enroll in the program, rather than from the beginning of the year. HECO FSOP at 43.

iii. IRP DSM Cost Estimates

A comparison of the updated energy efficiency DSM program energy and demand savings, with the DSM Action Plan impact estimates included in HECO's IRP-3, was shown in Exhibit 11 to the FSOP. The comparison indicated that the proposed DSM program impacts were comparable with and similar to the IRP-3 estimates. Therefore, if HECO's IRP-3 were considered to be a reasonable basis for HECO's energy efficiency goals, the proposed DSM programs would achieve those goals. HECO FSOP at 52.

iv. Tracking and Evaluation Costs

The current DSM program tracking system, DSMIS, will require updating to reflect changes in incentive levels and new technologies. HECO T-11 at 18, 28, 36, 55-56.

In general, the evaluation budgets were normalized based on a five-year timeframe, with HECO concentrating its initial efforts on developing a comprehensive evaluation plan, which will guide the activities for the next four years. HECO T-11 at 18, 28, 36-37. HECO's future

impact evaluations will concentrate on the new energy efficiency measures added to HECO's portfolio of DSM programs. See HECO T-11 at 47.

The evaluation costs were determined for each of five years based on the type of activity that would be suitable for each year in that timeframe. For the first year, HECO specified developing evaluation plans and setting up the evaluation effort. The second and fourth years were devoted to data collection activities. The third and fifth years were for conducting the process and impact evaluation studies. The costs will typically vary amongst these different activities. Since the first year costs were quite low relative to other years, HECO normalized the evaluation expenses for the 5-year period by taking the total 5-year cumulative evaluation costs, dividing by 5, and adding the result to program costs to represent each individual year. See HECO T-11 at 12.

6. Increase in Costs

The increased funding for its energy efficiency programs is consistent with HECO's strong corporate commitment to offer its customers a vastly expanded array of energy efficiency programs. These programs have been re-designed, and newly created in some cases, to more effectively tap the significant energy efficiency resource potential that remains on Oahu. While HECO's ongoing DSM programs have been very effective and beneficial for its ratepayers, more work is needed to tap additional markets and end-uses that have not been well penetrated. This includes the multi-family, residential new construction and small commercial market segments. This also includes the residential cooling, appliance and lighting end-uses as well as the commercial cooling, ventilation and lighting end-uses. To effectively achieve the energy and demand savings goals set forth herein, much work is needed that will require the significantly expanded expenditure of money.

7. DSM Program Cost-Effectiveness

The IRP Framework requires that the cost-effectiveness of DSM programs be analyzed from varying perspectives (e.g., utility cost perspective, rate impact measure perspective, participant impact perspective, societal cost perspective and total resource cost perspective). The overall determination of cost-effectiveness in the IRP process should take into account all of the goals and objectives of IRP (including the availability of non-quantifiable benefits, the impact of the programs on the utility's financial integrity, supporting Hawaii's State energy objectives, and the rate impacts of the programs).

a. Benefit/Cost Tests

In general, HECO considers a DSM program or portfolio of programs cost effective if the benefit/cost ratios for the Participant, Utility Cost ("UC"), Total Resource Cost ("TRC"), and Rate Impact Measure ("RIM") tests are greater than one (i.e., system benefits are greater than program costs). See HECO FSOP at 52. For the purposes of HECO's DSM programs, the cost-effectiveness tests follow the California Standard Practice Manual: Economic Analysis of Demand-side Programs and Projects. The benefits include the net present value of the generating capacity and energy costs avoided by the DSM Programs. However, as noted in HECO's FSOP (pages 28-29, and 45), the standard cost-effectiveness tests do not include non-quantifiable benefits such as customer equity, environmental and cultural benefits, and the contribution to the Renewable Portfolio Standards ("RPS"). The costs included in the tests are direct program and/or participant costs. See response to LOL/HECO-IR-1.a.

The Participant Test quantifies the benefit a participant can derive from a DSM program. This test measures whether the DSM measure is economically attractive to a participating customer. The UC Test compares avoided utility costs, fuel and capacity costs with utility

program costs. Values greater than one indicate that the life-cycle fuel and capacity savings exceed the life-cycle program costs. The TRC Test compares the capacity and fuel savings with the utility program costs plus customer costs. The RIM Test includes the lost revenues from the reduced electricity sales as a cost. Values less than one indicate that the average rates may increase over the life of the program. HECO T-11 at 11.

The TRC perspective is the primary perspective the Commission looks at in reviewing DSM programs. See Re Kauai Electric Division of Citizens Utilities Co., Docket No. 94-0337, Decision and Order No. 15733 (August 5, 1997) at 17. In addition, impacts on non-participants, as well as participants, should be considered in determining utility incentives to customers, which are paid for by all customers.

The benefits in the UC and TRC Tests are the avoided supply costs of energy and demand for the periods when the DSM measure or program being tested results in a load reduction. The UC benefit/cost ratio is equal to ratio of the total discounted benefits (i.e., the net present value ["npv "] of the avoided supply costs of energy and demand) to the total discounted program costs (i.e., the npv of the program costs incurred by the utility, including the incentives paid to customers). The TRC benefit-cost ratio is equal to ratio of the total discounted benefits to the total discounted utility and participant costs (i.e., the npv of the costs incurred by the utility and participants, taking into account tax credits received by participants). In the TRC Test, the incentives paid to customers are "transfer" costs (i.e., the incentives increase the utility's cost, but decrease the participant's cost).⁴¹

Energy efficiency programs typically fail to pass the RIM test because those programs

⁴¹ The benefit-cost ratios used to express the results of the UC Test and the TRC Test are calculated in accordance with the California Standard Practice Manual: Economic Analysis of Demand-Side Management Programs (December 1997). See, e.g., Re Integrated Resource Planning, Docket No. 6617, Decision and Order No. 4630 (May 22, 1992) at 3. The benefits and costs included in the various tests are listed on page 3 of the revised response to CA/HECO-IR-9.

reduce electricity sales. The fixed costs of the utility then have to be spread over fewer kWh, increasing the per kWh price of electricity. HECO FSOP at 52.

A fifth cost effectiveness test, the Societal Cost test, requires the quantification of social costs; for example, the program's value as a fuel price hedge and as a way to avoid adverse environmental impacts associated with oil burning electrical generators. While these are benefits of the DSM programs, they are difficult to quantify. Instead, these benefits should be considered on a qualitative basis and taken into account when interpreting the results of the other cost effectiveness tests.⁴² HECO FSOP at 52.

In general, HECO's position is that DSM programs should have positive net benefits according to both the UC and TRC test perspectives to be considered "cost-effective". However, the overall determination of cost-effectiveness in the IRP process should take into account all of the goals and objectives of IRP (including the availability of non-quantifiable benefits, the impact of the programs on the utility's financial integrity, supporting Hawaii's State energy objectives and the rate impact of the programs). The determination of cost-effectiveness in IRP should consider both quantitative benefits and costs (which are reflected in the benefit-cost ratios) and qualitative benefits and costs (which are not reflected in the benefit-cost ratios). DSM programs provide significant qualitative benefits, which help achieve the objectives of HECO's IRP. For example, solar water heaters utilize an environmentally clean, renewable energy resource. In addition, the solar water heating component of the residential DSM programs is a major contributor to meeting the State's renewable energy objective. Response to HSEA/HECO-IR-2.b.

⁴² There is not a formal process for weighting qualitative benefits in the overall program assessment of cost-effectiveness. In its annual A&S and M&E reports, HECO reports the cost-effectiveness of each of its DSM programs without any non-quantifiable benefits, but describes those benefits in qualitative terms.

Therefore, while the results of all of the tests should be examined, programs should not necessarily have to pass all of the cost-effectiveness tests in order to be implemented. As a rule of thumb, if the DSM program or portfolio passes the TRC test, it is a general indication that system benefits are greater than program costs, and the program should probably be pursued. There are exceptions to this guideline, however, that were identified with respect to the TRC test. HECO FSOP at 53.

The DSM program benefit cost ratios shown in revised Exhibit 10 indicate that, with few exceptions, the proposed programs are cost-effective. In the case of the REWH Program, whose calculated TRC ratio is 0.58, HECO supports the continuation of the program for customer equity purposes. See HECO FSOP at 53. HECO also supports the continuation of the CICR Program, whose calculated TRC benefit ratio is 0.75.

b. Customer Equity

Customer equity is an important, but non-quantifiable issue. Its value lies in engendering among all utility customers the understanding that the DSM programs are inclusive, i.e., that virtually every customer, regardless of customer class has an opportunity to benefit from the energy savings and customer incentives offered by the programs. Without the element of customer equity, the customer classes unable to participate in the DSM programs may perceive the programs as being exclusive and unfairly discriminatory. The issue of customer equity also encompasses the fair allocation of DSM incentives to all income classes. Thus, HECO has proposed a RLI program directed towards customers who would not otherwise be able to participate due to initial first cost hurdles. See response to HSEA/HECO-IR-3.

There are different economic effects of the DSM Programs on participants and non-participants. Those differences occur because participants receive DSM program rebates for

their financial investment in eligible energy conservation measures, and benefit from lower energy bills that result from energy savings. Program costs are recovered from both participants and non-participants, and both participants and non-participants receive the long-term energy and capacity deferral benefits that result from the DSM programs. See response to CA-IR-329.

HECO recognizes that the difference in economic effects exists and has intentionally developed a wide-ranging array of DSM measures under its existing and proposed DSM programs (and has budgeted funds to market those measures) in order to provide the large majority of customers with opportunities to participate. Typically, the DSM measures are also cost-effective over their service lives from the perspective of the participant. Since HECO has attempted to reduce economic and market barriers to participation, actual involvement in HECO's DSM programs is a matter of customer choice, and participants and non-participants are largely self-selecting. See response to CA-IR-329.

c. EE DSM Program Avoided Costs

The cost-effectiveness of the Energy Efficiency DSM programs was assessed by comparing the costs avoided as a result of the implementation of the programs against the program implementation costs. The avoided costs were estimated by calculating the difference in costs (capacity and energy) between a "Future EE DSM" (or "base") resource plan, which included the DSM programs, and a "No Future EE DSM" (or "alternate") resource plan, which excluded the DSM programs. See revised Exhibit 12 at 1-3.

As explained in Exhibit 12, the avoided costs were estimated from base and alternate plans under a "Scenario A," which included the specific assumptions described below. The avoided costs are sensitive to the assumptions, and a change in the assumptions would produce different avoided cost results. The assumptions used in Scenario A, and some of their associated

uncertainties, were as follows:

Wind Resource. Scenario A assumed that a 50 MW wind farm would be producing energy on the HECO system in 2009. This assumption was consistent with the company's Final Preferred Plan in its IRP-3 filed with the Commission on October 28, 2005, although the IRP-3 indicated that the actual size would depend upon wind resource and siting conditions (IRP-3 at 1-25). The commercial operation date was subject to uncertainties such as site availability and resolution of potential interconnection issues.

Municipal Solid Waste Resource. Scenario A assumed that a nominal 16 MW Municipal Solid Waste generating unit would be added to the HECO system in the 2013 timeframe. The potential for this project was identified in Section 15.4.1.6 of HECO's IRP-3 (IRP-3 at 15-35). HECO will continue to work with the City and County of Honolulu to facilitate this project, but the precise size and commercial operation date are uncertain.

Photovoltaic Resources. Scenario A assumed that HECO would install 300 kW of PV in each of the years 2007, 2015, 2020, and 2025. This assumption was consistent with HECO's IRP-3 (IRP-3 at 1-24), although it is possible that the precise implementation schedule could differ.

Distributed Generation. Scenario A assumed that an additional 15 MW of utility-sited distributed generation would be installed in 2006. (Scenario A captured the approximately 15 MW of utility-sited DG actually installed in 2005.) The potential for risk-mitigating DG was discussed in HECO's IRP-3 (IRP-3 at 1-25).

Sales and Peak Forecast. Scenario A was based on the April 2006 short-term forecast for years 2006-2010, with sales and peaks for the years beyond 2010 based on year-over-year percentage increases from the February 2004 long-term forecast. The February 2004 forecast was utilized in HECO's IRP-3. The April 2006 short-term forecast was the Company's latest official forecast, and was generally lower than the IRP-3 forecast. Forecasts are planning tools, and it is possible that actual system peaks could vary from the forecasts assumed. For example, peaks can be impacted by weather, which is difficult to predict.

Fuel Price Forecast. Scenario A used HECO's 2006 Fuel Price Forecast. Actual fuel prices may vary from the forecast, which would have an impact on DSM's avoided energy cost.⁴³

EFOR. Scenario A used HECO unit effective forced outage rate ("EFOR") values that were contained in the Company's 2006 AOS filing. Specifically, for the purposes

⁴³ Energy rates used to estimate customer bill savings were updated to reflect the more recent fuel oil price projections shown in Exhibit 12. Since the model only accepts one energy rate per program, the updated energy rates reflect \$60/bbl LSFO fuel.

of this analysis, it was assumed that until new generation is installed, HECO unit EFORs would track the "Forward-Looking EFOR" shown on Table ES-2 of HECO's adequacy of Supply Report, filed March 6, 2006 ("HECO 2006 AOS Report"). Subsequently, in the year following the installation of the 2nd CT (2010), it was assumed that the "4-year average EFOR" shown on Table ES-2 would be achieved. The EFOR assumption affects the calculation of generating system reliability, which in turn is used to determine when additional generating capacity should be installed. Actual generating unit EFOR may deviate from the assumptions used.

Second Combustion Turbine. HECO's 2006 Adequacy of Supply indicated that even under a lower load scenario, reserve capacity shortfalls would increase to a level such that the nominal 100 MW of capacity of the next generating unit would not be sufficient to restore HECO's generating system reliability above the 4.5 years per day reliability guideline in 2009 and beyond. HECO 2006 AOS Report at 36. Results consistent with this finding were observed in Scenario A, and so a second CT was added to the resource plan.⁴⁴ Even with reduced peaks from the April 2006 Sales and Peak forecast, and 30 MW of utility-sited DG (15 MW in 2005 and 15 MW in 2006), a second increment of firm generating capacity was needed to satisfy the generating system reliability guideline in HECO's capacity planning criteria. The potential for the second CT was also described in HECO's IRP-3 (IRP-3 at 15-36).

"Virtual DG". The "No Future EE DSM" or "alternate" resource plan for Scenario A included a supply-side resource called "Virtual DG". This proxy resource was used to provide a means to estimate the capacity-value that Energy Efficiency DSM can provide in years with a pronounced generation shortfall (2006 thru 2009) when firm central-station generation capacity cannot be added soon enough to address the shortfall. Absent this resource, energy efficiency DSM programs would be given zero capacity value in the near-term years, as the impacts are not large enough to defer a generating unit addition. In this "work-around" method, a proxy Virtual DG resource is used in the alternate resource plan. The size of the Virtual DG resource is approximately equal to that of the peak reduction benefit of the energy efficiency DSM programs for the years in which a capacity value for the programs is being estimated. The energy efficiency DSM programs were displaced in the base resource plan. The underlying energy and capacity costs for this Virtual DG resource were derived from the costs for HECO's utility-sited DG.⁴⁵

⁴⁴ As a contingency planning measure, the permitting for the first CT has included the potential for a second simple cycle CT at the same site. Therefore, although no decision has been made to proceed with the second CT, and an application to the Commission has not been filed, the possibility of a second 113MW simple cycle CT is included in the plan in 2009 as a proxy for the additional generation that is forecast to be needed. The actual size, type, cost and timing of generation to be added after the first CT scheduled for 2009 is currently under review.

⁴⁵ The proxy costs for Virtual DG were based on HECO's experience with utility-sited distributed generation, and included estimates for lease rent, capital improvements, and operations and maintenance such as telecommunications, labor, security, and environmental. Response to RMI/HECO-IR-14.c. See also response to RMI/HECO-IR-16.c.

Load Management Programs. Scenario A assumed that the Company was able to successfully implement its CIDLC and RDLC programs. These programs were in both the base and alternate resource plans since the objective was to estimate the avoided costs of the energy efficiency DSM programs only. The underlying assumptions for these programs were from the January 2006 timeframe, and may differ from actual load management impacts obtained in the future.

An issue was raised at the panel hearings by RMI with respect to the allocation of the avoided cost benefits to the energy efficiency programs. The avoided costs benefits arise primarily out of the assumed deferral of a 180 MW coal unit from 2015 to 2024. This results in high avoided capacity costs during those years, but negative avoided energy costs (because the coal unit would have displaced higher cost oil-fired kWh had it not been deferred).

To address this concern, HECO committed to do an alternative calculation, in which the avoided capacity costs were limited to the value of a proxy combustion turbine ("Proxy CT"). Tr. (8/29) at 475 (Williams). In such a calculation, the difference between the avoided capacity costs for the coal unit and the Proxy CT are added to the avoided energy costs, so that total avoided costs remain the same. HECO will provide the calculation to all parties and participants.

d. Revised Results

As shown in revised Exhibit 10, all of the programs, with the exception of the REWH Program and the CICR Program, pass the TRC, UC, and Participant ("PT") tests. The results of

the TRC, UC and PT tests for the seven energy efficiency DSM programs are as follows:⁴⁶

DSM PROGRAM	Benefit/Cost Ratios		
	TRC Test	UC Test	PT Test
CIEE	1.28	2.56	3.86
CINC	1.13	2.05	3.69
CICR	0.75	2.97	2.45
ESH	2.39	4.53	3.73
REWH	0.58	0.99	1.52
RNC	1.49	2.28	2.03
RLI	4.96	2.41	NA

The REWH program passes the Participant test, but does not pass the TRC test. (The result of the UC test is 0.99.) As indicated earlier, the TRC test explores the economic implications of the purchase decision. However, residential customers often make purchases for other reasons. In addition, in order to achieve a degree of customer equity, HECO supports the continuation of the REWH Program. The program also results in energy savings, avoids oil burned to generate electricity, and contributes to the attainment of RPS.

The proposed increase in the solar water heating system customer incentive does not affect the results of the TRC test, because while it increases the cost to the utility, it also reduces the system installation cost by the same amount. However, the increase in customer incentive will lower the UC test result.

The results of the benefit/cost tests for the energy efficiency programs are shown on revised Exhibit 10 on page 1.⁴⁷ A better representation (i.e., one showing the benefit/cost ratios for only the energy efficiency DSM programs) is found in RMI Hearings Exhibit B. See Tr. (8/28) at 456-66.

⁴⁶ For illustrative purposes, the calculation of DSM program cost-effectiveness includes utility compensation Alternative No. 2 as proposed by HECO on page 79 of its FSOP.

⁴⁷ Revised response to CA/HECO-IR-9 (8/24/06) at 32.

The ratios for the seven energy efficiency DSM programs taken as a whole are:

Test	B/C Ratio
TRC	1.22
UC	2.42
RIM	0.44
Participant	3.07

e. **Load Management Programs**

HECO provided benefit/cost test results for the load management programs based on updated avoided costs. The results, however, were based on the avoided capacity costs calculated for the energy efficiency DSM programs. RMI pointed out, and HECO agreed, that the results do not correctly reflect the benefit/cost ratios for the load management programs. HECO stated that updated results would be provided with the modifications to the programs to be filed later this year. See Tr. (8/28) at 457.

8. **Monitoring and Evaluation**

a. **Monitoring and Evaluation Plans**

For the new programs approved in this proceeding, HECO has proposed that an independent third-party evaluator selected by the Commission be responsible for periodically conducting an evaluation of the utility and non-utility DSM programs and program impacts. The evaluation would be similar to the program impact evaluation currently conducted by a third-party, KEMA, Inc. ("KEMA"), hired by HECO. The evaluation was conducted approximately every three years. The independent third-party would be selected by the Commission through an RFP process from lists provided by both the utility and non-utility administrators. Since under this proposal, the Commission would be overseeing and paying for the evaluation, the costs

incurred for the evaluation should not be included in calculating the shareholder incentive.

Response to DOD/HECO-IR-18.

In HECO T-11, HECO included a detailed monitoring and evaluation ("Evaluation") plan for the proposed programs. HECO intended to conduct a comprehensive Evaluation effort during the five-year period (2007-2011) covered under the proposed programs. This effort was to include Evaluation plan development, regulatory reporting requirements (including the various annual evaluation report filings to the Commission, data collection efforts, impact evaluations and process evaluations. HECO T-11 at 11-12. The measurement and evaluation of the programs will occur approximately every three years. The results of the impact evaluations would be applied to impacts on a going-forward basis until the next impact evaluation was conducted. The evaluation results would be reported in the Annual M&E Report currently filed in the 4th quarter of the year. HECO T-10 at 51.

In order to continue the evaluation process, for the years 2005 through 2007, KEMA has been hired to evaluate HECO's programs. Having conducted independent evaluations on the DSM programs since their beginning, KEMA was familiar with the programs. HECO chose KEMA for its 2005 through 2007 evaluations based on that familiarity, as well as its past working relationship with KEMA. HECO will compensate KEMA based on a time and materials contract. As in the past, KEMA's reports will be made public after HECO reviews them. Tr. (8/31) at 955-57 (Hee). Net and gross participation numbers will be reported, and HECO will be using on-site monitoring in the measurement and verification method. Tr. (8/31) at 957 (Block).

KEMA's general methodology is to randomly select a sample from the population being evaluated. On-site metering is conducted for a period of time which is determined based on the

type of measure being evaluated. For example, the evaluation of solar water heating is based on a year long time frame to account for seasonal variations of the savings. Metering periods are shorter for commercial lighting. Results from the sample are then applied to the rest of the population using regression analysis. HECO recognizes that in sectors such as large commercial/industrial, there is may not be homogeny in the sample, but HECO attempts to address that issue in its regression analyses. Tr. (8/31) at 958-59 (Block).

b. DSM Program Reports

HECO reports the results of the DSM programs to interested parties in its DSM Annual Program Accomplishments and Surcharge ("A&S") Report submitted to the Commission within three months after the end of the calendar year. The contents of the report are discussed in the testimony of HECO's Alan K.C. Hee in HECO T-10. HECO proposes to continue to file its M&E Report in November of the program year. That report discloses any program modifications that HECO will put into effect for the coming program year including the movement of funds and resources between programs, changing the incentive levels for existing measures, and adding new measures and establishing associated incentive levels. For program modifications made during the course of the program year, HECO will inform the Commission by letter of the program modifications, and also detail the changes in the following M&E Report. HECO T-11 at 12-13.

c. Quality Control Measures

HECO intends to take quality control measures to ensure that the DSM resources paid for are actually obtained. Quality control activities will vary depending on whether the incentive is prescriptive or customized. For prescriptive measures the Company will conduct a sampling of pre- and post-inspection site visits. All new construction sites receiving prescriptive incentives

greater than \$2,500 will be post-inspected. The post-inspection is intended to ensure that the equipment as listed on the application was actually installed, and to ensure that the installation is performing properly. HECO T-11 at 13.

For customized measures, a pre-inspection of the existing facility will be conducted. The pre-inspection visit serves to verify that the system is truly being upgraded. An independent professional engineer review is required under certain circumstances. In these cases, the engineer will review the energy and demand savings and the reasonableness of the cost estimate. On-site validation is used to document and verify the savings. HECO T-11 at 13-14.

9. DSM Program Flexibility

HECO proposed that DSM programs costs (e.g., program labor and overheads, administration, implementation, and marketing) be incorporated into base rates and accorded similar regulatory treatment as other utility "O&M" cost elements, (e.g., HECO could increase or decrease the DSM program costs in response to customer acceptance and participation levels). Customer incentives would also be incorporated into base rates, but HECO's proposed budget flexibility provisions, and customer incentives would be subject to a reconciliation clause. See HECO T-10 at 57-63. For example, an increase in the total customer incentive budget of more than 25% would require Commission approval. In addition, customer incentive funds could only be moved among energy efficiency programs, or among load management programs, and not between energy efficiency and load management programs. See HECO T-10 at 48-49, 50; response to CA-IR-305.a, Docket No. 04-0113; response to CA/HECO-IR-7.

The Company proposed to inform the Commission that it intended to make use of these flexibility provisions by including planned changes to DSM programs in its Annual M&E Report. HECO did not request budget flexibility for other components of the DSM programs, as

HECO proposed that these other components, along with the customer incentive component, be included in base rates. However, only the customer incentives were proposed to be subject to the reconciliation clause. HECO T-11 at 3.

Recovery of program costs through base rates would provide budget flexibility to the Company. However, if the Commission decides that DSM program costs should continue to be recovered through the DSM surcharge, then HECO requests Commission approval of DSM program budget flexibility provisions that will allow HECO to do the following without prior Commission approval:

- (1) Carry over funds not spent in prior years;
- (2) Move the customer incentive funds among energy efficiency programs and among load management programs to address new technologies and to adjust to changes in energy codes and other external events that might impact HECO's ability to meet the energy and demand goals of the programs;
- (3) Increase or decrease individual measure incentive levels to respond to changes in participation levels and markets;
- (4) Add new measures, and establish corresponding incentive levels to address market opportunities; and
- (5) Increase the total program budget by 25% without Commission approval.

HECO FSOP at 40-41; HECO T-11 at 2-3.

The fourth provisions would allow the Company to implement, without Commission approval, new measures not covered by the proposed new DSM programs. However, HECO would inform the Commission of planned changes in program design and implementation in its Annual Modifications and Evaluation Report. The intent of the flexibility HECO is requesting in the referenced provision is to allow HECO to be able to quickly respond to advances in energy conservation measures between rate proceedings. For example, advances in fluorescent lamp technology have produced T-5 lamp fixtures that are considerably more efficient than the T-8 lamp fixtures that are currently eligible for customer rebates under HECO's existing Commercial

and Industrial Energy Efficiency Program. HECO has requested the ability to offer customer rebates for T-5 fluorescent fixtures in this proceeding. HECO is requesting the flexibility to add individual energy efficient measures, not entire DSM programs, to respond more quickly to changes in technologies and in the marketplace, so as to limit the lost opportunities to encourage the installations of the most efficient technologies available. Response to CA-IR-312.a, Docket No. 04-0113.

Flexibility in DSM program implementation is an essential management tool that will enable the utilities to meet the energy efficiency goals. In its Annual M&E Report, HECO would continue to disclose the program modifications that would go into effect in the following program year. For program modifications made during the course of a program year, HECO would also inform the Commission of the program modifications by letter filing. HECO FSOP at 40; see Tr. 791-94 (Hee).

B. ENHANCED ENERGY EFFICIENCY PROGRAMS

1. CIEE Program

a. Program Description

The CIEE Program offers prescriptive incentives for achieving varying degrees of efficiency for T-8 fluorescent and metal halide lighting, occupancy sensors and reflectors. For air conditioning technologies, split systems, package and chiller units that exceed the minimum model energy code standards by 10% are offered incentives. HECO T-11 at 15; HECO-1102 at 19-20. Other measures such as Premium Efficiency Motors, LED Exit Signs, Window Tinting, and Industrial Lighting are also eligible technologies. HECO FSOP at 43. Measures added to this docket which were not part of the rate case analysis include: Delamping, HE High Pressure Sodium HID, HE Metal Halide, and Occupancy Sensors. See revised Exhibit 8. In addition to

incentives, other elements of the CIEE Program include marketing, customer and vendor support, design assistance and customer education. HECO T-11 at 14; HECO-1102 at 18-19.

Customer education is a key element of this program. HECO offers numerous technology training workshops to customers each year, highlighting the technologies, energy savings and the financial incentives associated with the HECO DSM programs. These workshops educate and train customers in specific technologies and expose them to new applications of those technologies. HECO FSOP at 47; HECO T-11 at 15; HECO-1102 at 19-20.

Preliminary Energy Assessment ("PEA") funding is offered to help customers work with facility managers, architects and engineers to evaluate potential energy efficient options for large projects. HECO FSOP at 47; HECO T-11 at 15; HECO-1102 at 19-20 .

Technical support is another key feature to the program. Program representatives are available to work closely with customers requiring assistance with appropriate applications of energy efficiency measures and calculation of savings potential. Program representatives visit customer's sites, make recommendations and assist in the application process. HECO FSOP at 47; HECO T-11 at 15; HECO-1102 at 19-20 .

b. Customer Incentives

In the past, incentives were based on their level of savings and persistence multiplied by their avoided costs to determine value to HECO. This was used as a guideline to create a customer incentive level that would offset the incremental difference in cost between a standard efficiency measure and the high efficiency measure. However, for some technologies, the current level of incentives has not been enough to encourage adoption. In the enhanced CIEE program the incentives will be higher, offsetting a larger portion of the incremental cost. This amount will vary depending on technology, saturation, and market acceptance. HECO T-11 at

15-16; HECO-1102 at 35-38.

For the purposes of program planning, typical per-customer incentive amounts were estimated, as reported in HECO-1106. Detailed incentive amounts by measure were provided in HECO-1107. See HECO T-11 at 16.

The Company financing option that had previously been included in the program has been removed. Third-party financing has proven to be a more acceptable alternative given the regulatory requirements involved with utility financing.⁴⁸ HECO FSOP at 51.

2. Eligibility/Participation

The CIEE Program is a prescriptive program. Therefore, a customer may participate by purchasing an energy efficient motor, efficient new lamps or other qualifying equipment, and applying for a rebates up to six months after the time of purchase. The CIEE Program is expected to increase impacts by approximately 50% from current levels as a result of increased incentives, targeted marketing, and trade ally support. HECO T-11 at 16-17. All HECO customers that are metered under commercial utility tariffs, G, J, H, PP, PS, PT, and U are eligible for the CIEE Program.

HECO's current policy is to follow the 50% Exclusion Rule, whereby customers that purchase less than 50% of their power from HECO are not eligible. However, HECO is currently re-evaluating the procedures used to determine the 50% level. This is discussed this in more detail in the testimony of Alan Hee in HECO T-10.

In its testimony submitted with its rate case application on November 12, 2004, HECO

⁴⁸ HECO considered offering a financing option for customers to ease their capital cost burden associated with the energy efficiency measures adopted. The financing option would initially have been pursued on a pilot basis, with HECO exploring the possibility of establishing a revolving fund for smaller customers, who are typically more capital-constrained, and an interest buy-down for the larger customers. HECO did not budget for the financing option for the CIEE Program, however, because HECO had not resolved the financing option.

proposed to modify its DSM program rules regarding the payment of DSM customer incentives relating to customer decisions on self- or co-generation. See HECO T-10 at 38. HECO has applied this proposed modification in its current DSM programs. HECO included this proposed modification in its Annual M&E Report filed with the Commission on November 30, 2004 and implemented the modification one calendar month following the date of the filing.

The 50% Exclusion Rule for HECO's CIEE, CICR, and CINC Programs dictated that customers who provided over 50% of their electrical requirements by self- or co-generation or who took service from a supplier other than HECO be excluded from participating in HECO's DSM programs. In addition, customers that received incentives from the programs had to agree to return a prorated portion of the incentives if they subsequently installed self- or co-generation to serve more than 50% of their electrical requirements, or elected to take service from a supplier other than HECO. In D&O No. 14638, dated April 22, 1996 (Docket Nos. 94-0010, 94-011, and 94-0012), the Commission approved this provision. HECO T-10 at 38-39.

HECO proposed the modification to address two situations:

- (1) If a customer participating in a HECO DSM measure is served by HECO and by its own generation or another supplier, it is difficult to determine whether the DSM measure provides a benefit to HECO's system or to the customer or the customer's own generation or other supplier.
- (2) HECO was also concerned with two existing large facilities served by their own generation. These customers purchase some electricity from HECO. When their generators are working, they purchase very little, if any, energy. Any investment by HECO in improving the efficiency of these customers will not benefit HECO's other customers, nor will HECO have an opportunity to recover the cost of these investments from the two customers, since the proposed recovery mechanism is based on an energy surcharge.

HECO T-10 at 39.

As implemented, the revised provision provides that:

HECO will provide DSM incentives to customers who, at the time the measures are installed, are purchasing more than 50% of their electrical energy requirements from

HECO. For the purposes of calculating the percentage of energy requirements:

- (1) Electrical output from utility-owned combined heat and power ("CHP") unit(s) will be considered self-generation.
- (2) Self-generation from renewable sources of energy will not be counted as self-generation.
- (3) The calculation will be based on the most recent three months of metered sales that represent normal operations prior to the installation of DSM measures.

HECO will not require that the DSM customer incentives be refunded if the customer, following investments in energy efficiency, installed self- or co-generation at some future date. However, if the customer had a binding contract known to HECO to install self- or co-generation at the time the DSM measures are installed, then the 50% exclusion rule would be applied. HECO T-10 at 39-40.

The proposed modification addressed three issues that had surfaced with respect to program implementation: (1) treatment of utility vs. non-utility CHP, (2) establishing the base level of consumption, and (3) self-generated renewable energy. HECO T-10 at 40.

In Docket No. 03-0366, HECO requested approval of a utility CHP program in which a customer could purchase electricity and thermal energy from a utility owned and operated CHP unit located in close proximity to the customer's facility. Since a customer participating in HECO's CHP program would continue to purchase a portion of its electricity from the utility, a customer with a utility CHP unit would be treated differently from a customer with a 3rd party CHP unit under the existing DSM customer incentive policy. Thus, HECO proposed to modify the DSM customer incentive policy to treat utility CHP and 3rd party CHP similarly. HECO T-10 at 40-41.

HECO also had encountered problems establishing a base level of consumption against which to measure the 50% energy comparison. The modified provision more clearly defines what the base level of consumption is. For example, consider a customer who has been

purchasing all of its energy requirements from HECO, who implements significant DSM measures that reduce its energy purchases by 40%, and then subsequently decides to install a self-generator. This created an issue as to whether the original level of purchases from HECO set the base level for determining the 50% exclusion, or whether the level of purchases following the implementation of the DSM measures set the base level for the 50% comparison. (A similar problem arose when proposed projects combine significant DSM measures with co-generation.) HECO T-10 at 41.

Another dimension of the problem occurred when a customer was considering the installation of DSM measures now with the possibility of installing self-generation at some future point in time. Because the customer was considering self-generation, under the prior DSM customer incentive rules HECO could not assure the customer that the DSM customer incentive would not be partly refundable. This uncertainty had the potential to result in the DSM measures not being installed even if the customer eventually decided against self-generation. HECO T-10 at 41.

The modification addresses self-generated renewable energy as follows: The 50% exclusion does not apply to customers who use renewable energy (solar, biomass, or wind) to meet the majority of their load requirements. For this purpose the thermal energy of CHP units is not included because the 50% Exclusion Rule is based on the electrical energy provided by alternative energy sources and the Companies should not have to analyze all energy sources (electrical and non-electrical) in order to process DSM applications. HECO T-10 at 41-42.

This policy is being applied retroactively in the following manner:

- (1) Customers who received incentives for DSM measures prior to the installation of self- or co-generation will not be required to refund the paid-out incentives, ensuring that the treatment of customers who have installed or will install self- or co-generation in the future are treated similarly. Incentive refunds made by customers, if any, resulting from

the existing policy will be credited back to customers.

(2) Customers who did not receive DSM incentives because of a stated intention to self- or co-generate more than 50% of their electricity consumption at some time in the future, and who have not installed self-or co-generation, may apply for DSM incentives.

(3) Customers who did not receive DSM rebates because of a stated intention to self- or co-generate more than 50% of their electricity consumption at some time in the future, and who did install self- or co-generation that is more than 50% of their electrical needs shall not receive DSM incentives. In this case, there is no uncertainty that the customer does, in fact, self- or co-generate more than 50% of its electrical needs.

HECO T-10 at 42-43.

In summary, these modifications to the existing provision: (1) reflect changes in the energy market that have occurred since the inception of HECO's DSM programs, (2) help increase the effectiveness of HECO's existing DSM programs, (3) eliminate the uncertainty created by the existing retroactive incentive refund provisions, and (4) remove any disincentive for renewable energy which might exist due to the exclusion clause in the existing DSM programs. The modifications also remove a significant disincentive to self-and co-generation by not requiring retroactive DSM incentive refunds and provide for similar treatment of utility and non-utility CHP. HECO T-10 at 43.

a. Marketing

The CIEE Program contains several marketing components. HECO expects to continue its direct marketing efforts through personal contact and small group sessions with customers and trade allies conducted by HECO's existing Account Managers and DSM contract employees. HECO also works closely with the Federal Government, State of Hawaii, and City and County of Honolulu to identify energy efficiency opportunities at their facilities. HECO T-11 at 19; HECO-1102 at 37-38.

HECO conducts multiple outreach events each year that create awareness among the business community for energy efficiency. These include the Energy\$olutions for Business

meeting and the Pacific Coast Electrical Association (“PCEA”) Conference and Energy Expo, in alternating years, featuring over thirty five technical workshops. HECO continues to expand its customer outreach by holding small meetings and workshops for customers who may not be large enough to receive personalized service from their Account Managers. These meetings include presentations by HECO about the Energy\$olutions for Business Program. In 2003 and 2004, HECO sponsored meetings and workshops specifically targeted at certain market segments and technologies. HECO T-11 at 19-20; HECO-1102 at 37-38.

HECO also collaborates with the State Department of Business, Economic Development and Tourism and the U.S. Department of Energy to sponsor several events including a Sustainable Design Tools Workshop Series targeting design professionals and workshops on technologies, financing, and project implementation. HECO will continue to provide educational opportunities to the professional community as well as trade allies in order to maximize the potential for adoption and implementation of the technologies. HECO will also continue its meetings with architectural and engineering firms. HECO T-11 at 20; HECO-1102 at 37-38.

HECO uses print ads to promote the commercial and industrial programs. In 2003, print ads were placed in Pacific Business News, Hawaii Business, Building Management, Building Industry Digest, Bids Services Weekly, Hawaii Hospitality and Building Operators and Managers Association (“BOMA”) Membership Directory and Year in Review Issue, Building Products Guide, Architecture Directory, Construction Preview, Hawaii Building Guide, and the Building Industry Association (“BIA”) Directory of Hawaii Building Professionals. HECO took advantage of MNI Network’s advertising package and placed regional insertions in Time, Newsweek, US News and Sports Illustrated. These ads supported customer awareness of the programs. HECO will continue to use print media advertising to maintain constant awareness of

the programs in the community. HECO T-11 at 20-21; HECO-1102 at 37-38.

Beginning in 2003, HECO made a shift from reliance on the paper Energy Solutions for Business Power Book (as a tool to describe the program benefits and procedures for customers) to a CD format named the Power CD. The Power CD is distributed in a portfolio packet along with many of the forms and documents useful for the program. This approach offers all of the Power Book information in portfolio format at a lower cost. This format also allows modifications and improvements to the Power CD at a very low cost. The portfolio approach allows the information to be tailored to the interests of the audience. HECO T-11 at 21; HECO-1102 at 37-38.

In addition, the storage capacity of the CD allows HECO to include all the information in the printed Power Book, back issues of HECO's commercial and industrial publication Powerlines, information on previous Energy Efficiency Awards winners, and key worksheets to facilitate customer incentive calculations. The Power CD also contains case studies of how HECO customers have benefited from the program by installing energy efficient technologies and provides customers with additional ideas for energy efficient projects. Moreover, the Power CD offers energy saving tips and general information on energy use by businesses. HECO T-11 at 21; HECO-1102 at 37-38.

In 2003, HECO expanded its marketing campaign directed at small businesses to include medium businesses. The original Energy Solutions for Small Business program targets customers with less than 200 fixtures. It is designed to compensate for small business' lack of expertise in energy efficiency matters by providing lighting audits of their facilities conducted by a HECO representative or a lighting vendor under contract to HECO. Following the lighting audit, a HECO employee presents the lighting retrofit proposal to the customer. If the customer

accepts the proposal, HECO coordinates the complete lighting retrofit with a lighting vendor. Following the completion of the project, the customer has the option of paying for the project in a lump sum or making four monthly payments with no interest in its electric bills. HECO T-11 at 21-22; HECO-1102 at 37-38.

The 2003 program expansion included medium sized customers with up to 800 light fixtures. This campaign was dubbed the Light Year Program. In the Light Year Program, the customer could select from three lighting contractors to provide free lighting audits and assessment reports. Following the lighting audit, HECO presents the lighting retrofit proposals to the customer. If the customer accepts the proposal, HECO assists in coordinating the complete lighting retrofit with the lighting vendor. Following the completion of the project, the customer has the option of paying for the project in a lump sum or making ten monthly payments with no interest in its electric bills. The Light Year and Energy Solutions for Small Business components will remain a subset of the CIEE program. HECO T-11 at 22; HECO-1102 at 37-38.

Direct personal, educational, and media marketing approaches will be implemented to encourage trade allies and the contracting community to push program and technology awareness deeper into the community. HECO T-11 at 22; HECO-1102 at 37-38.

b. Program Enhancements

HECO will continue to enhance its CIEE program. Many large customers have completed their lighting retrofits from standard lamps and ballasts to more efficient T-8 lamps and electronic ballasts. In order to continue to realize additional impacts from this technology, HECO will work with the owners of medium and smaller sized businesses to encourage them to adopt the newer T-8 lamps and electronic ballast lighting systems through the aforementioned

Energy Solutions for Small Business program. HECO T-11 at 22-23.

HECO will continue to increase its customer awareness efforts targeting medium and small businesses. In particular, HECO will target industrial customers to promote energy efficient motors, high efficiency industrial lighting systems and high efficiency industrial process cooling. HECO T-11 at 23.

HECO also recognizes that there are many customers who have not retrofitted their lighting at present incentive levels. In order to achieve a higher saturation of lighting, incentive levels will be increased to 25% of the incremental cost. New proven technologies that have entered the marketplace will require additional outreach in order to achieve a market transformation. T-5 fluorescent lighting can be used as a substitute for high intensity discharge (“HID”) lighting in high bay and warehouse applications, and can be also used in low ceiling interior applications. Inductive lighting has also emerged as a viable energy efficient alternative to HID’s. Light emitting diode “LED” and light emitting crystal “LEC” technologies offer efficient lighting in many new applications. “Super T-8s” have recently been introduced to the market, creating an opportunity to further the savings resulting from a T12 to T8 lamp retrofit. HECO has added these technologies to the CIEE Program. HECO T-11 at 23; HECO-1102 at 35.

Given the high level of HVAC efficiency that is required by the Model Energy Code, it has become increasingly difficult to achieve support of the industry that designs, markets, and installs small to mid-size split and package air conditioning systems in the five to fifty Ton range. In its new programs HECO will develop market outreach programs that will be designed to encourage “upselling” of energy efficient equipment. HECO will develop and offer tools that will demonstrate the life cycle benefits of higher efficiency equipment relative to a standard unit.

The tools will assist calculation of the long-term economic benefits of energy efficiency.

Incentives will also be raised to 25% of the incremental costs between the standard and the high efficiency equipment. HECO T-11 at 23-24; HECO-1102 at 38.

In addition, the CIEE program will introduce an element designed to partner with HECO's trade allies to market the DSM programs. A vendor incentive will be developed that allows incentives to be paid to the vendors that successfully persuade a customer to install qualifying equipment. HECO T-11 at 24; HECO-1102 at 38.

c. Program Costs

The first year cost estimate for the enhanced CIEE Program is \$3,372,462, as shown in revised Exhibit 7. Of this amount, approximately \$2.3 million is for direct financial incentives to customers. The remainder is budgeted for direct labor, implementation, program tracking, evaluation, PEAs, marketing and advertising, and administration/miscellaneous expenses associated with the delivery of the program to customers.⁴⁹

The first year cost estimate is approximately \$2 million greater than the 2005 actual cost. Actual costs for the CIEE Program for 2005 are provided in HECO's Annual Program Accomplishments and Surcharge Report filed March 31, 2006 ("2005 A&S Report").⁵⁰ By and large, the structure of the program will stay the same. However, HECO expects participation levels to increase with higher budgets dedicated to customer incentives, and a greater emphasis on targeting energy efficiency measures that have historically been difficult to penetrate. Marketing efforts will also be stepped up to contribute toward increasing the rate of program participation. See HECO T-11 at 17.

⁴⁹ Attachment B of HECO's 2005 A&S Report defines "other costs" as "materials, travel, and miscellaneous."

⁵⁰ See 2005 A&S Report, Attachment B at 1.

Incentives will be increased from the 2005 actual level of \$732,894 to an estimated \$2.3 million. This amount represents higher incentive payment levels per measure as well as an increase in participation due to expansion of the program technologies, greater market penetration, and increased acceptance from non-participating customers. See HECO T-11 at 17-18.

The first year CIEE Direct Labor Budget was increased to \$380,862, from the actual 2005 cost of \$156,680. Certain contract employees that are now assigned to the CIEE Program are expected to be converted to regular HECO employees and two additional engineers would be hired as regular employees for the expanded program, with time allocated among the CIEE, CINC and CICR programs. See HECO T-11 at 18.

Overall, the first year implementation expense was reduced from an actual cost of \$258,172 in 2005 to an estimated first year cost of \$160,063. This is primarily due to converting contract employees, included as non-labor expenses in the Implementation budget, to regular HECO employees who are included in direct labor. See HECO T-11 at 18.

PEAs are offered to targeted customers where there is substantial potential for energy savings in existing facilities. HECO funds these detailed energy audits to provide specific recommendations to customers as to which investments in energy efficient retrofits are the most cost effective. The budget for first year has been increased to \$200,000 from the 2005 actual amount of \$39,522, due to an anticipated escalation of PEA solicitation that will take place with increased staffing and marketing efforts. See HECO T-11 at 19, 20.

The advertising and marketing budget is increased in the first year to \$170,589 from the actual expense of \$132,065 in 2005. Additional marketing efforts will be required to expand program elements that encourage participation. These include expanding small to medium

business markets and developing a vendor incentive program to increase trade ally support of HECO's DSM programs. See HECO T-11 at 19.

Other program costs associated with administration/miscellaneous were increased from the actual 2005 cost of \$70,511 to \$109,077 in the first year. This is proportional to the overall budget and reflects the overall increase in program support activity. See HECO T-11 at 19.

d. Program Impacts

The program has resulted in a net reduction of 13.0 MW of demand and 98,781 MWh of energy since its inception in mid-1996 through 2005. See A&S Reports (1996-2005).

The first-year savings goals are 2.3 MW and 15,226 MWh, as shown in revised Exhibit 10. After five years, HECO estimated the cumulative savings for this program to be 11.4 MW and 76,331 MWh. See revised Exhibit 10.

e. Program Cost-Effectiveness

The program is estimated to be cost effective from the TRC test perspective with a B/C ratio of 1.28. See revised Exhibit 10 (revised Exhibit 10 also contains benefit-cost test results for the other tests and programs.).

In evaluating the cost-effectiveness of the CIEE Program, HECO used a 65.3% net-to-gross ratio for energy and 66.4% net-to-gross ratio for coincident demand reduction. These values are consistent with the results of the impact evaluation for program years 1998-1999. See HECO T-11 at 24.

f. Program Issues

HECO opposes RMI's proposal to allow the utility to use its capital to install the efficient technology itself, and then earn a return on capital by leasing the equipment to the customer. The utility's role is to provide energy service. It is not a financing entity. There are regulatory,

legal, and accounting rules that prevent HECO from engaging in such financing. Tr. (8/29) at 269, 285-87 (Hee).

HECO also opposes RMI's suggestion that its current 50% threshold for customers who have a CHP system be removed. A customer who has a CHP system can serve its needs by either the CHP system or by purchasing electricity from the utility. The objective of the DSM programs is to assist other ratepayers with energy efficiency by decreasing total system load. When there is a customer with 50% of its consumption being provided by its own self-generator, the issue arises as to where the benefits are going. HECO did not conduct a formal study to determine the 50% threshold. Rather, HECO set that level so that it could at least be assured that there is a substantial benefit for the system grid. Tr. (8/29) at 288-89 (Hee).

3. CINC Program

a. Program Description

The CINC Program is a combination of prescriptive and customized incentives and design assistance that captures elements of both the CIEE and CICR Programs in order to help motivate a customer into making the investment in an energy efficient measure during design and construction. Customer education that especially targets the architect and engineering professional design community is key to the success of the CINC Program. Relationships with entities such as the federal, state, and local governments are also supported in the Program. HECO FSOP at 48; HECO T-11 at 24-25; HECO-1102 at 38-39.

Design assistance funding is offered to assist in early design consultation and review to present energy efficient options to the building owners or developers. The relationships with architects, planners, engineers, and developers are essential to identify projects and keep apprised of their status during the design process. HECO FSOP at 48.

The CINC Program seeks to maximize opportunities for saving energy in new commercial and industrial buildings and in major renovations of commercial/industrial facilities. It is of particular importance in new construction to capture the savings potential early in the life of a building. It may take fifteen to thirty years for a new HVAC plant to reach the end of its usable life, for example, and then be replaced. HECO T-11 at; HECO-1102 at . From the time of its inception in mid-1996 through 2003, the CINC Program resulted in a reduction of 2.8 MW of demand and 19,062 MWh of energy. HECO T-11 at 24-25; HECO-1102 at 38-39.

This docket includes CINC program measures that were not analyzed during the rate case. Those measures are: HE High Pressure Sodium HID, HE Metal Halide, Occupancy Sensors, and Customized Measures. See revised Exhibit 8.

b. Customer Incentives

In the past, incentives for each energy efficiency measure were based on their level of savings and persistence multiplied by their avoided costs to determine value to HECO. This was used as a guideline to create a customer incentive level that would offset the incremental difference in cost between a standard efficiency measure and the high efficiency measure. However, for some technologies this has not been a large enough incentive to encourage adoption. In the enhanced CINC program the incentives will be higher, offsetting a larger portion of the incremental cost. This amount will vary depending on technology, saturation and market acceptance. HECO T-11 at 26; HECO-1102 at 41.

For the purposes of program planning, typical per-customer incentive amounts were estimated and are reported in HECO-1106. Detailed incentive amounts by measure are provided in HECO-1107. See HECO T-11 at 26.

c. Eligibility/Participation

All HECO customers that are metered under commercial utility tariffs, G, J, H, PP, PS, PT, and U are eligible for the CINC program. As with the CIEE program, HECO will provide DSM incentives to customers who, at the time the measures are installed, are purchasing more than 50% of their electrical energy requirements from HECO.

Customers can apply to participate in the CINC Program in various ways. Since most new construction projects have long lead times, HECO will normally approach the customer to explain the CINC Program and its features. During these discussions, HECO will open a program application for the customer, or in some instances the customer's engineer or architect will complete the application forms. In the instances of small new construction projects which may have been missed by HECO, the customer may still qualify for the prescriptive rebates for measures contained in the CINC Program by submitting an application directly to HECO. Impacts are expected to increase by about 50% from current levels of participation as a result of increased incentives, targeted marketing, and trade ally support. See HECO T-11 at 26-27.

d. Marketing

The CINC Program will be promoted in conjunction with the CIEE and CICR Programs. These joint promotional efforts, covered under the CIEE Program Marketing section, supra included initiating personal contact and small group sessions with customers and trade allies by HECO's Account Managers and DSM employees, sponsoring seminars and workshops, and staffing booths at trade shows. HECO T-11 at 29.

HECO will continue to conduct workshops on the Energy Solutions programs for architectural firms. These presentations are aimed at increasing the awareness of energy efficient technologies in the design community, and influencing new construction and renovation projects

during the design phase. HECO believes that these marketing efforts are resulting in energy efficient designs and specifications in future projects. HECO T-11 at 30; HECO-1102 at 41.

In addition, HECO has partnered with the U.S. Department of Energy to promote the Rebuild America program. The Rebuild America program seeks to improve the quality of life in communities through energy efficient solutions and sustainable building design. HECO has also promoted the Leadership in Energy and Environmental Design ("LEED") program to local architects and designers. The LEED program and its Green Building Rating System is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. Through these partnerships HECO hopes to improve the level of energy efficiency in the design of future new construction projects. HECO T-11 at 30.

e. Program Enhancements

The existing CINC Program will be enhanced primarily by increasing the incentives paid for the design features. Several of the new construction technologies that are covered under the customized approach have been evaluated, resulting in predictable energy savings results. These measures will become prescriptive and fewer technologies will require the extensive review process of the customized approach. Examples of the customized measures that will now qualify for prescriptive rebates are window tinting, variable frequency drives, compact fluorescent lamps, LED exit signs, inductive lighting, and T5 fixtures, as shown in HECO-1106. HECO T-11 at 30-31; HECO-1102 at 39.

In the past, demand incentives were paid on customized measures that reduce demand during HECO's priority peak, 5:00 pm to 9:00 pm. HECO is now proposing to pay the demand incentive for any customer demand reduction. This change reflects the added value of capacity reductions during afternoon peaks and allows the customer and HECO to pre-determine most

demand incentive payments. Energy incentives are paid on the calculated savings based on engineering estimates or post-monitored data or both. Detailed incentive amounts by measure are provided in HECO-1107. HECO T-11 at 31.

Under the CINC Program, a building commissioning process will be implemented. HECO will work with DBEDT and other parties to conduct training for the engineering community on how to conduct a formal building commission and will provide incentives for trained engineers to conduct commissioning for new construction projects. Building commissioning is a process by which experts inspect a building's mechanical systems (typically HVAC) to ensure that all of the specified energy components and systems were properly installed and operate as designed. Building commissioning has emerged nationwide as a significant construction element that identifies and rectifies potential problems in buildings that might otherwise compromise the energy savings measures built into a building. HECO T-11 at 31.

f. Program Costs

The first year cost estimate for the enhanced CINC Program is \$1,637,950. Approximately \$950,000 of that budget is for incentives to customers. The remainder is budgeted for labor, implementation, program tracking, evaluation, design assistance, marketing and advertising, and administration/miscellaneous expenses associated with the delivery of the program to customers. See revised Exhibit 7.

The first year cost estimate is approximately \$800,000 greater than the 2005 actual cost.⁵¹ With the intent to accelerate participation beyond historical levels, the use of additional marketing avenues is expected to increase the rate of program participation, and higher incentive

⁵¹ The actual costs for 2005 are reported in Appendix B (page 3) of the 2005 A&S Report.

amounts will be used to accelerate adoption. These changes will be realized largely through the existing program design. Incentives will be increased from a 2005 actual amount of \$541,763 to \$936,020 in the first year. This amount represents higher incentive payment levels per measure as well as an increase in participation due to expansion of the program technologies, greater market penetration, and increased acceptance from non-participating customers. See HECO T-11 at 27.

The first year CINC Direct Labor Budget is \$337,298, as compared to the 2005 actual cost of \$95,521. The increase is due to contract employees that are now assigned to the CINC Programs are expected to be converted to regular HECO employees. Two additional engineers are expected to be hired as regular employees for the expanded program, with time allocated among the CIEE, CINC, and CICR programs. See HECO T-11 at 27-28.

The first year implementation expense estimate is decreased to \$72,501 from an actual 2005 amount of \$115,976. First year tracking expense estimates are \$17,778, as compared to \$1,247 recorded in 2005. The normalized Evaluation expense estimate is \$38,864, as compared to an actual cost of \$402 in 2005.

In addition to offering financial incentives for both prescriptive and customized DSM measures, the CINC Program provides Design Assistance funding, up to \$10,000 per project, for new construction projects. This funding allows the customer to explore alternative approaches to lighting, air conditioning, and other design features to ensure that the project will integrate the most energy efficient measures. Design assistance can be used by the customer to either fund additional studies by its design team or to retain outside engineers to review the recommended design. HECO T-11 at 28-29.

In 2003, Design Assistance spending was zero. This is in large part due to timing of

projects. Two projects were initiated and underway in 2003, but neither project was completed during the year. In 2004, three Design Assistance applications were opened. As community and professional awareness of Design Assistance availability grows through program outreach, Design Assistance spending is expected to play a significant role as one of many services the programs can offer to assist customers in reaching their energy goals. See HECO T-11 at 29.

The advertising and marketing budget is increased from the 2005 actual cost of \$28,410 to \$81,599 in the first year. Additional marketing efforts will be used to continue outreach with project planning professionals. The CINC Program marketing efforts will also seek to focus on new targets relevant to the new construction industry in addition to the general market. See HECO T-11 at 29.

Other program costs associated with administration/miscellaneous were increased from \$27,684 in 2005 to \$53,890 in the first year. This is proportional to the overall budget and reflects the overall increase in program support activity. See HECO T-11 at 29.

g. Program Impacts

The CINC program has resulted in a net reduction of 6.4 MW of demand and 43,416 MWh of energy since its inception in mid-1996 through 2005. See A&S Reports (1996-2005).

The first-year savings goals are 0.9 MW and 5,823 MWh. After five years, HECO estimated the cumulative savings for this program to be 4.4 MW and 29,115 MWh. See revised Exhibit 10.

h. Program Cost-Effectiveness

The CINC program is estimated to be cost effective from the TRC test perspective with a B/C ratio of 1.13. See revised Exhibit 10. In evaluating the cost-effectiveness of the CINC Program, HECO used a 59.6% net-to-gross ratio for energy and a 61% net-to-gross ratio for

coincident demand reduction. These values are consistent with the results of the impact evaluation for program years 1998-1999. HECO T-11 at 32.

i. Program Issues

HECO proposes to reduce the payback period under the CINC and CICR programs from two years to one year. HECO recognizes that if it completely eliminated the payback period, the utility might experience the implementation of various kinds of small but very efficient measures included in its program. However, the utility also recognizes that those are the types of measures where customers should probably recognize the payback period and implement them on their own.

Nevertheless, the two-year payback did not provide enough of an incentive for customers. There were some measures with payback periods between one and two years that should have been installed by the customer but for some reason were not. HECO therefore proposes the reduced payback period in recognition of the utility's need to incent customers to install those measures. See Tr. (8/29) at 291-93 (Hee).

EPA, in its report, commented that: "The 25% rebate levels and the suggested drop in the 2-year payback stipulation in the Custom Rebates program may raise concerns about the level of free-ridership." EPA Report at 19. HECO acknowledges the EPA Report's concerns and proposes to re-establish a lower payback threshold of one-year for the CICR Program. While establishing different threshold levels for key measures as the EPA Report suggests would enable measures more widely adopted to be differentiated from measures not adopted as frequently, implementing those various threshold levels for CICR projects (which typically involve a number of measures) could be complex and could delay the DSM program application process and result in additional costs for the administration of the program.

Thus, HECO opposes the EPA's proposal for the development of payback rules that apply to specific end uses. Administratively, such a policy would be very difficult to implement because projects coming under the CINC and CICR programs typically combine a number of different measures. To have a different payback threshold for a different measure means that the analysis of whether a specific project that consists of many different measures is eligible or not would be very difficult. Tr. (8/29) at 291-93 (Hee).

4. CICR Program

a. Program Description

The CICR Program was developed to address the large number of DSM measures that are available, which, due to the limited potential size of the market for these measures or to the site-specific savings resulting from their installation, do not lend themselves to a prescriptive incentive program design. These measures include the redesign of air conditioning systems and the installation of controls on various energy using systems. Currently, in order to qualify for an incentive, each project must have a greater than two-year payback and must pass the TRC test. From the time of its inception in mid-1996 through 2003, the CICR Program resulted in a reduction of 5.584 MW of demand and 42,853 MWh of energy through 2003. HECO T-11 at 32; HECO-1102 at 41.

The key feature of the CICR Program is its flexibility to incent most energy efficient technologies. The CICR Program applications typically require pre-monitoring of a facility prior to the installation of the energy efficiency measure, and post-monitoring after the device has been installed and is operational. In the past, demand incentives were paid on measures that reduced demand during HECO's priority peak, 5:00 pm to 9:00 pm. HECO is now proposing to pay the demand incentive for any customer demand reduction. This change reflects the added

value of capacity reductions during afternoon peaks and allows the customer and HECO to pre-determine most demand incentive payments. Energy incentives are paid on the calculated savings based on engineering estimates or post-monitored data or both. See HECO T-11 at 33; HECO FSOP at 49.

Since each CICR Program application can be unique, the program is labor intensive and requires significantly more engineering and technical review than the prescriptive CIEE Program. However, since the implementation of the CICR Program in 1996, HECO and third-party consulting engineers have been able to streamline the application process by performing detailed technical analysis on several specific technologies. For these technologies, HECO developed spreadsheets and computer models have made projects much simpler and quicker to process. These technologies include window film tinting, booster pumps, variable frequency drives (“VFD”), compact fluorescent lamps, and energy management systems. See HECO T-11 at 38.

The framework used to analyze the CICR program has changed since the rate case. Savings and customer costs based on a review of historical program data (from DSMIS records) with appropriate adjustments have been made to reflect measures that are now included in the CIEE program. See revised Exhibit 8.

b. Customer Incentives

In the past, the incentives for energy efficiency measures were based on their level of savings and persistence multiplied by their avoided costs to determine value to HECO. This was used as a guideline to create a customer incentive level that would offset the incremental difference in cost between a standard efficiency measure and the high efficiency measure. However, for some technologies this has not been enough of an incentive to encourage adoption.

The incentive amount will vary depending on technology, saturation and market acceptance. In the CICR Program, these higher incentives will be reflected in the amount that is paid per kW and kWh. HECO T-11 at 33; HECO-1102 at 44.

Businesses consider the risk inherent with an unfamiliar technology in their decision to adopt that technology. The DSM customer rebates are designed to overcome market barriers, including financial barriers and other risks. However, as indicated in its response to HSEA/HECO-IR-3, HECO sets its customer incentives at levels which appear to be necessary to motivate customers to adopt the particular DSM measures. The current \$0.05/kwh and \$125/kw incentive levels in the C&I Customized Rebate Program have resulted in excellent customer response. Response to HREA/HECO-IR-8.

c. **Eligibility/Participation**

Commercial customers under a G, H, J, PP, PS, PT, or U schedule are eligible to participate in the CICR Program. HECO will provide DSM incentives to customers who, at the time the measures are installed, are purchasing more than 50% of their electrical energy requirements from HECO.

Since both the customer incentive and the program savings are based on a comparison of the pre and post operation of the project, customers must apply for participation in the CICR program prior to the installation of any qualifying measure. This provides HECO with the opportunity to conduct pre inspections and to perform any metering and data collection needed to quantify the savings. HECO T-11 at 34.

HECO anticipates that impacts can be increased from current levels of participation if incentives are increased and the two-year simple payback restriction is modified. Currently, the simple payback restriction deems technologies not eligible if they have shorter than a two-year

payback. This restriction was imposed on the assumption that projects with less than a two-year payback were so financially compelling that no incentive was necessary. In practice, however, that has not been the case. Many projects with less than a two-year payback remain to be implemented and represent a substantial market opportunity. LED exit signs are an example. While replacement of LED exit signs often has a less than two-year payback, many customers have not yet made the change. HECO T-11 at 34-35.

As discussed under the CINC program, HECO proposed that the two-year payback restriction be reduced to one year, thus allowing a number of energy efficiency measures to become eligible under the CICR Program. The projected savings include these measures. The HECO IRP-3 Demand-Side Technical Committee endorsed the earlier proposal to simply eliminate this requirement. HECO T-11 at 35.

d. Marketing

The marketing components of the CICR Program include several delivery mechanisms: advertising in print media; outreach through public and customer events such as HECO sponsored workshops; direct program education to customers, professionals, and trade allies; direct mail; direct marketing through HECO Account Managers and DSM Program Representatives; and participation in local trade and professional organizations such as American Society of Heating, Air Conditioning and Ventilation Engineers ("ASHRAE"), Illuminating Engineering Society ("IES"), Building Owners and Managers Association ("BOMA"), Building Industry Association ("BIA"), Hawaii Society of Healthcare Engineers ("HSHE") and the Rebuild Hawaii Consortium. This marketing effort will be bundled with the CIEE and CINC Programs. HECO T-11 at 38-39.

The CICR Program also contains a strong educational component since many of the

DSM measures available to customers are new or have not been implemented in Hawaii. To educate customers regarding new and existing DSM technologies HECO has sponsored workshops and seminars featuring experts from both Hawaii and the mainland to address measures such as building commissioning, new lighting applications, variable frequency drives, and building controls. HECO T-11 at 39; HECO-1102 at 44.

Furthermore, the CICR Program provides matching funds up to \$10,000 per project, for feasibility studies to customers who wish to retain an engineering firm to determine the feasibility of a DSM project or measure. This facet of the program has been popular with customers and has resulted in several major projects being implemented. See HECO T-11 at 39; HECO-1102 at 44.

In addition, HECO uses outside engineering companies to complete PEAs under the CIEE Program that identify energy efficient opportunities in a customer's facility. The PEA identifies the measures and provides estimates of potential savings and of the cost to install the measures. These PEAs have resulted in several major projects being completed that otherwise would not have been undertaken. PEAs identify potential CICR projects as well as prescriptive CIEE projects. HECO T-11 at 39-40.

In order to reach the professional architect and engineering community, HECO organizes program information meetings at local firms' places of business. Presentations describe the CICR Program as well as other DSM programs. HECO also invites the consultants to participate in feasibility studies, design assistance, and PEA projects in order to get detailed design guidelines during the design and development phases of a project. HECO T-11 at 40.

e. Program Enhancements

The existing CICR Program will be enhanced in two ways. First, the requirement that

prevents a customized application from being paid if the project has a less than two-year payback period will be reduced to one year, as discussed in the CINC Program section. As previously mentioned, there continue to be many potential projects in Oahu facilities that are cost effective with less than a two-year payback that have not been implemented by their owners. HECO T-11 at 40; HECO-1102 at 42.

Second, a building commissioning process will be implemented. This will allow funding for customers that elect to have their buildings commissioned to ensure that all of the specified energy components and systems were properly installed and operate as designed. Building commissioning has emerged nationwide as a significant construction element that identifies and rectifies potential problems in buildings that might otherwise compromise the energy savings measures built into a building. HECO T-11 at 40; HECO-1102 at 42.

f. Program Costs

The first year expense estimate for the enhanced CICR Program is \$1,708,376. Approximately \$750,000 of that estimate is for incentives to customers. The remainder is budgeted for labor, implementation, program tracking, evaluation, PEAs, marketing and advertising, and administration/miscellaneous expenses associated with the delivery of the program to customers. See revised Exhibit 7.

The first year cost estimate for the CICR Program is approximately \$175,000 greater than the 2005 actual cost,⁵² although customer incentives in the first year (\$743,936) are expected to be lower than in the 2005 actual cost of \$1,056,533. The CICR program's estimated incentive levels vary from year to year depending on forecast participation levels, and also due to efforts to create more prescriptive rebates, which fall under the CIEE program.

⁵² The 2005 actual costs are reported in Appendix B (page 5) of the 2005 A&S Report.

The first year CICR Direct Labor Budget is \$517,310, as compared to a 2005 actual cost of \$103,333. The increase is due to contract employees that are now assigned to the CICR Programs expected to be converted to regular HECO employees. Two additional engineers are expected to be hired as regular employees for the expanded program, with time allocated among the CIEE, CINC, and CICR programs. See HECO T-11 at 36.

The first year Implementation expense estimate is reported to decrease from the 2005 actual cost of \$264,634 to \$36,225. In addition, first year estimated tracking expenses are \$17,778, as compared to actual 2005 costs of \$1,247.

The normalized first year Evaluation expense is \$44,890, as compared to the 2005 actual cost of \$402.

In addition to offering financial incentives for customized DSM measures, the CICR Program provides Feasibility Study funding for retrofit construction projects. This funding, offered as a fifty-fifty matching contribution up to \$10,000, allows the customer to explore innovative approaches to lighting, air conditioning, and other energy measures to identify energy efficient opportunities that can be integrated in the design. Feasibility Studies can be used by the customer to either fund additional engineering work by its design team or to retain specialized engineers to review and comment on the recommended design. In 2005, Feasibility Study spending was \$30,746. Feasibility Studies will continue to play a role as one of many services the DSM programs can offer to assist customers in reaching their energy goals. It is anticipated that, with an escalated CICR Program, 10 to 15 Feasibility Studies will be implemented in the first year with a budget of \$125,000. See HECO T-11 at 37.

The advertising and marketing budget is increased from an actual cost of \$58,884 in 2005 to \$107,061 in the first year. In order to increase participation in the CICR Program, advertising

and marketing will distinguish the customized approach from the prescriptive CIEE Program approach. Much of the marketing for the CIEE, CINC and CICR programs will continue to be conducted as a unified Energy Solutions for Business program. However, the CICR Program also encourages customer creativity in incorporating energy efficiency into the design of its facilities. See HECO T-11 at 37-38.

Some of the advertising in 2003 and 2004 focused specifically on sustainable design, which often does not fall into the prescriptive framework of the CIEE Program. While the overall DSM marketing effort escalated in 2005, marketing specifically for the CICR Program increased to emphasize that unique opportunities are available to capture incentives and to take advantage of engineering assistance, project monitoring, and savings verification. See HECO T-11 at 38.

Other CICR Program costs associated with administration/miscellaneous are expected to increase from 2005 actual costs of \$37,274 to \$66,176. This increase is proportional to the overall budget and reflects the overall increase in program support activity. HECO T-11 at 38.

g. Program Impacts

The program has resulted in a net reduction of 8.8 MW of demand and 69,324 MWh of energy since its inception in mid-1996 through 2005.

The first-year savings goals for the CICR Program are 1.2 MW and 9,583 MWh, as shown in revised Exhibit 10. After five years, HECO estimated the cumulative savings for this program to be 6.2 MW and 47,915 MWh. See revised Exhibit 10.

h. Program Cost-Effectiveness

The CICR program is estimated not to be cost-effective from the TRC test perspective with a B/C ratio of 0.75, but is very cost-effective based on the UC Test, with a B/C ratio of

2.97. See revised Exhibit 10.

In order to be eligible for a CICR Program rebate, projects must have a TRC of at least 1.0. Project TRC ratios are calculated using participant costs and net benefits to the Company from the project's energy and demand savings. Therefore, the calculation of project TRCs does not include utility implementation costs. On the other hand, the TRC calculation for the program as a whole does include utility implementation costs. As a result, it is possible for a portfolio of CICR Program projects that individually pass the project TRC threshold of one, to have a program TRC of less than one.

In this case, the forecast of savings used to predict the future performance of the CICR Program was based on historical impacts, which were achieved with projects that had to have paybacks greater than two years. The forecasted savings are likely lower than expected under the proposed CICR Program, which has a threshold of one year. Overall, projects that meet this one-year threshold are more cost-effective than projects that must have paybacks of greater than two years. Thus, the actual TRC for the proposed CICR Program is expected to exceed 0.75.

i. Program Issues

HECO plans to monitor and assess the CICR program to minimize fuel switching. HECO does not provide rebates for fuel switching and the Commission ruled on fuel substitution in the initial IRP dockets of HECO and TGC. See Docket No. 7257 (HECO IRP-1), Decision and Order No. 13839 (filed March 31, 1995) at 23; Docket No. 7261 (TGC IRP-1), Decision and Order No. 13925 (filed May 24, 1995) at 19-20; Docket Nos. 94-0010, 94-0011 and 94-0012 (Consolidated), Decision and Order No. 14638 (filed April 22, 1996) at 8-9. HECO would be able to detect prohibited fuel-switching activities in its M&E efforts during the examination of the different projects being rebated. Tr. (8/29) at 294-95 (Hee).

When a project is submitted under the CICR program, HECO assigns an engineer to that program or project. That engineer works directly with the facilities engineer to consider the base technology, the efficient technology, energy saving strategies, energy saving levels, and demand saving levels. A substantial amount of analysis goes into a project before a rebate is ever paid. Thus, if a customer's ultimate objective was fuel switching, HECO would discover that in the analysis prior to the rebate being paid. Tr. (8/29) at 296-97 (Block).

5. REWH Program

a. Program Description

The REWH Program encourages customers to reduce their electricity consumption for water heating by promoting the sale, installation and use of energy-efficient water heaters in the existing residential market. The program specifically offers financial incentives for the installation of solar, heat pump, and high efficiency electric water heaters. The incentives are currently offered in conjunction with available State of Hawaii Energy Conservation and Federal tax credits. HECO is proposing to increase the customer incentive level for solar water heating systems as discussed in Issue No. 4. HECO FSOP at 49.

The objective of the REWH Program is to continue the successful implementation of HECO's REWH Program. From its inception in 1996, the REWH Program resulted in over 9 MW of demand reduction and 40,712 MWh of annual energy savings through the end of 2003. HECO T-11 at 41; HECO-1102 at 30.

b. Customer Incentives

In its FSOP, HECO proposed to increase the solar water heating customer incentive to \$1000 from the \$750 rebate in the existing REWH and RNC Programs. HECO is proposing this increase to make the level of incentive consistent with the solar water heating incentives at

HELCO and MECO, and reduce confusion that exists about the difference in programs. The higher incentive is also:

- (1) Designed to take advantage of, and reinforce the window of opportunity presented by, the new 30% federal tax credit effective at the beginning of 2006, which has a sunset date of December 31, 2007. Year-to-date solar water heating installations on Oahu indicate that the federal tax credit is providing a boost to program participation. The higher customer incentive should attract additional participants and lock in associated energy savings for the fifteen year life of the system. The momentum resulting from the higher incentive may even extend beyond the sunset date for the federal tax credit.
- (2) Consistent with state legislative intent. In SB 2957, the cap on the state tax credit for solar water heating was increased from \$1,750 to \$2,250. The Legislature was signaling an intention to encourage renewable energy technologies and solar water heating systems in particular.
- (3) Illustrative of the recent trend towards higher solar water heating system cost. For example, copper prices are rising and copper is a primary component of the solar panels and water piping. The higher installation cost of the systems means that keeping the customer incentive at \$750 effectively reduces the value of the incentive as a percentage of system cost.

HECO FSOP at 44-45.

The incentives for high efficiency water heaters vary depending on the size of the water heater, but remain unchanged from 2003, as shown in HECO-1106. HECO T-11 at 43.

c. Eligibility/Participation

All existing residential customers that have individual electric water heaters, including customers served on non-residential utility rates (master metered accounts) with electric resistance water heaters, can participate in the REWH Program. Residential building owners, including owners of apartment complexes and employee housing, whose properties utilize individual electric water heaters are also eligible to participate. However, housing covered under federal, state, city or county laws requiring the installation of heat pump or solar water heaters would not be eligible to receive an incentive for that technology, since they would not provide an additional reduction in HECO's peak load. HECO T-11 at 44; HECO-1102 at 30.

Residential property owners of master-metered or common-area-metered facilities with central water heating systems may apply for eligibility under the CICR Program. The benefits and costs of such installations accrue to the residential sector if the replaced water heaters were individually metered on rate schedule R; otherwise, such costs and benefits accrue to the commercial and industrial sector, as appropriate. HECO T-11 at 44.

To participate in the REWH Program, customers can call a participating solar contractor or HECO's office to receive a program application. When the customer purchases the system, the participating contractor will complete the application and give the customer an instant rebate. To participate in the energy efficient standard water heating program, the customer can mail in a copy of their invoice along with an incentive coupon that is available at most retail outlets selling water heaters. Many plumbers also have the incentive coupons and will make them available to the customer when installing a new qualifying water heater. The levels of participation in the REWH Program in 2005 were estimated to be 2,800 households per year (1,400 solar water heaters and 1,400 high efficiency electric water heaters), as shown in HECO-1106. In 2003, the participation levels were 1,443 solar water heaters, 6 heat pump water heaters, and 935 high efficiency electric water heaters. HECO T-11 at 44; HECO-1102 at 31.

For the solar water-heating component of the program, the eligibility criteria for systems are: (1) the solar water heating system must be designed to provide at least a 90% solar fraction, (2) the system has to be installed using approved components, and (3) the system has to be installed by a participating HECO contractor. The eligibility criteria were developed with the assistance of the solar industry. HECO maintains an approved list of contractors and accepted products. To be placed on the list of accepted products, a manufacturer must provide product specifications and a warranty statement. HECO T-11 at 42; HECO-1102 at 30.

For the heat pump water-heating component of the program, heat pump water heaters must be listed in the Gas Appliance Manufacturers Association's ("GAMA") Consumers' Directory of Certified Efficiency Ratings for Residential Heating and Water Heating Equipment (Consumer's Directory) and meet a coefficient of performance of at least 2.7. In the three years leading up to 2005, HECO paid incentives for less than ten heat pump water heaters a year and as of November of 2004, HECO did not forecast any installations for 2005. Accordingly, no forecasted impacts or expenses were included in the REWH Program. However, HECO will continue to pay incentives for heat pump water heaters in the amount of \$175 for retrofits and \$300 for new construction heat pump water heaters. HECO T-11 at 42; HECO-1102 at 30.

For the high efficiency electric resistance water-heating component of the program, electric resistance water heaters also must be listed in GAMA's directory of certified water heaters and must meet the energy efficiency requirements stipulated in HECO's current program. Qualifying efficiencies vary by the size of the water heater. Qualifying efficiencies exceed the City and County of Honolulu's Model Energy Code. HECO T-11 at 43; HECO-1102 at 30.

Finally, HECO has an objective of ensuring that an individual customer will be able to benefit from both the 25% rebate under the HECO program and the benefits conferred under the Pay as You Save program. Maximizing the magnitude of the resources that are available to the ratepayers so that they can install this equipment will be beneficial to the ratepayers while helping to meet state energy objectives. Tr. (8/29) at 328-29 (Waller).

In 2005, the participation levels were 1,300 solar water heaters and 931 high efficiency electric water heaters. See 2005 A&S Report at 53. From the trend of previous years, the forecast of installations used in the REWH Program for the proposed docket is 1,400 solar and 1,400 high efficiency electric water heaters. See revised Exhibit 8.

d. Marketing

Marketing and advertising efforts for the REWH program rely mainly on television commercials to build an overall awareness of the existence of HECO's REWH Program. Television commercials are effective in reaching a large number of customers and raising residential customers' awareness of the benefits of solar water heating. However, the short duration of the commercials makes it difficult to get specific details associated with the REWH Program across to customers. Also, the relatively high expense of television advertising makes it necessary for HECO to rely on other means of communication. HECO T-11 at 45.

To reach customers with specific details of the REWH, Program HECO also uses bill inserts and direct mailings. Bill stuffers and other direct mailers are mailed to customers' homes. The mailer contains a "hotline" telephone number and the address of HECO's Internet site (www.heco.com) where customers can go to get more information about the Residential DSM Programs. The use of bill stuffers allows HECO to contact every residential customer to provide them with information and increase their awareness of services and programs for only the cost of production and printing the material. (An effort is made to ensure that the size of the bill stuffer does not affect the postage rate of the bill package.) Detailed brochures, incentive vouchers, instructions, and a list of certified contractors are sent to those customers who call the hotline. HECO T-11 at 45-46; HECO-1102 at 31.

General media advertising will supplement the above marketing efforts. This may include newspaper advertising and radio spots. HECO will continue to contract with an advertising agency to assist in the marketing of the residential DSM programs. With the help of the advertising agency, HECO will continually consider new marketing concepts and creative ideas to improve customers' awareness of the program and the effectiveness of the marketing

program. HECO T-11 at 46; HECO-1102 at 31.

e. **Program Enhancements**

HECO plans to enhance the REWH Program by increasing the incentives for solar water heating, and increasing its marketing efforts. HECO also intends to enhance its energy efficiency DSM Program efforts for residential customers by offering two programs – the E\$H Program, and the RLI Program.

f. **Program Costs**

The first year estimate for the enhanced REWH Program is \$2,714,493. In this budget, approximately \$1.5 million is for incentives. The remainder is budgeted for direct labor and outside services for program implementation, program evaluation, advertising, and other services and expenses associated with the delivery of the program to customers. See revised Exhibit 7.

Actual expenses incurred in 2005 for the REWH Program were \$1,917,850,⁵³ compared to the first year estimate of \$2,714,493.

The estimated first year incentive expense for the enhanced REWH Program is \$1,470,000, as compared with actual 2005 costs of \$987,445. The estimated first year direct labor cost is \$43,654, as compared to the 2005 actual cost of \$132,360.

The first year implementation estimate is reported to increase by \$94,180 from \$422,552 in 2005 to \$516,732 in the first year. The first year tracking expense has been increased from an actual amount of \$2,709 in 2005 to an estimated \$11,111 in the first year.

The normalized first year evaluation expenses for the REWH Program are \$65,780. This represents an increase from the 2005 actual evaluation cost of \$4,152.

The first year estimate shows an increase of \$164,812 in advertising from the 2005 actual

⁵³ The 2005 actual costs are reported in Appendix B (page 8) of the 2005 A&S Report.

expense of \$323,188. This increase in expenses for advertising reflects a move to increase the advertising of the program back to levels experienced in the earlier years of the program. Actual expenses for advertising in years 1999 through 2003, were \$360,374; \$745,734; \$404,185; \$279,816 and \$250,421, respectively. The average expense over this period was \$408,106, although this average was slightly skewed by the abnormally high expense in 2000. See HECO T-11 at 47-48.

The first year administration/miscellaneous expense estimate shows an increase of \$73,772 to \$119,216 from the 2005 actual expense, which reflects the overall increase in program support activity. See HECO T-11 at 48.

g. Program Impacts

The program has resulted in a net reduction of 10.5 MW of demand and 46,315 MWh of energy since its inception in mid-1996 through 2005 (unless otherwise stated, subsequent program impacts are stated at the gross generation level, net of free-riders). See A&S Reports (1996-2005).

The first-year savings goals are 0.6 MW and 2,746 MWh. After five years, HECO estimated the cumulative savings for this program to be 3.2 MW and 13,730 MWh. See revised Exhibit 10.

HECO plans to evaluate the REWH Program using impact evaluations. An impact evaluation is the process of estimating the impacts of the program on energy use and demand. An impact evaluation for the REWH program is scheduled every three years. Expenses for evaluation are not consistent from year to year. For example, metering expenses in the second year are greater than either the preparatory evaluation work done in the second year or the report writing work done in the third year. However, evaluation expenses have been normalized for the

purposes of the test year. HECO T-11 at 48.

The future impact evaluation will be different from the ones completed since the inception of the program. Since the inception of the REWH Program, three extensive impact evaluations have been completed. In all three impact evaluations the results of the per-unit energy and demand savings for solar and high efficiency electric water heating systems have not changed significantly. Therefore, future impact evaluations for measures that have been evaluated in the past will not be as extensive. Instead, HECO will concentrate its evaluation efforts on new measures introduced in the portfolio of ten enhanced and new DSM programs. HECO T-11 at 48-49.

h. Program Cost-Effectiveness

The program is estimated not to be cost-effective from the TRC test perspective with a B/C ratio of 0.58. See revised Exhibit 10. In evaluating the cost-effectiveness of the REWH Program, HECO used a 72.9% net-to-gross ratio for energy and a 73.1% net-to-gross ratio for coincident demand reduction. These values are consistent with the results of the impact evaluation for program years 1998-1999. HECO T-11 at 49.

The Residential DSM Program does not appear to be cost-effective based on the results of the UC and TRC Tests. However, HECO has taken the position that the REWH DSM Program should be continued, because (1) the energy and demand savings, which represent the quantified benefits in the UC and TRC Tests, are conservatively calculated,⁵⁴ (2) the program provides significant qualitative benefits, which help HECO's IRP-3 Plan meet its objectives, (3) the program offers opportunities to residential customers to achieve electricity bill savings

⁵⁴ For example, in evaluating the cost-effectiveness of its DSM programs, HECO took a conservative approach by not quantifying any credits that may result from the deferral of transmission and distribution ("T&D") projects. Including the T&D deferral credit would improve the benefit-cost ratios. HSEA also raised an issue regarding the service lives used in estimating the duration of the solar water heating installations.

through the installation of energy efficiency measures, and (4) the TRC benefit-cost ratio is affected by the cost of individual solar systems, but non-participating customers are not negatively affected if individual customers choose to install more expensive systems (since HECO pays the same incentive).

With respect to the last point, the TRC Test presents unique challenges for residential programs. Commercial and industrial customers normally make investments in energy efficiency based on their return on investment. However, many residential customers purchase energy efficient technologies for reasons other than the return on investment. See HECO FSOP at 29. For example, residential customers may purchase energy efficient equipment, such as solar water heating systems, based on their personal environmental concerns and/or commitments. Other customers may purchase the same product, because it is different or new and they want to be in the forefront of new technologies. Residential customers with only two people in the family may also purchase a solar water heating system in anticipation of a growing family in the future – however, the increased future savings cannot be factored into the current cost effectiveness of the residential programs.

Consider a two-person family that purchases a solar water heating system because using solar energy reduces the amount of oil-fired generation. With an estimated system cost of \$5,000, or a net cost under the TRC test of \$2,400 after tax credits (utility incentives are considered a pass-through expense in the TRC test), an annual electricity bill savings of \$240, and a payback of 10 years, the TRC for that specific installation can be less than one. The family believes that reducing the impact on the environment is a “good thing” to do even though on a purely financial basis the payback is very long. Generally, energy efficiency measures, or energy efficiency programs that promote measures with long paybacks, for example 10 years,

will not pass the TRC test.

When reporting the REWH Program TRC for the year, this installation, along with many others like it, are included in the calculation. The result is that the cost-effectiveness of the REWH Program is lowered because some installations were performed for other than financial reasons. Response to RMI/HECO-IR-2.

The determination of cost-effectiveness in IRP should consider both quantitative benefits and costs (which are reflected in the benefit-cost ratios) and qualitative benefits and costs (which are not reflected in the benefit-cost ratios). Solar water heaters utilize an environmentally clean, renewable energy resource. In addition, the solar water heating component of the REWH DSM Program is a major contributor to meeting the State's RPS.

In its Decision and Order No. 11523 ("D&O 11523"), issued March 12, 1992 in Docket No. 6617, the Commission recognized the difficulty in accurately analyzing non-quantifiable benefits. In discussing the disagreement between the parties to that Docket to the concept of quantifying non-quantifiable benefits the Commission stated: "At the center of the controversy is whether any assigned quantitative value truly measures the impact that is being sought to be assessed." See D&O 11523 at 22. Consequently, the Commission ordered: "Impacts that cannot be reasonably and feasibly valued in dollar terms are to be qualitatively described." See response to HSEA/HECO-IR-2.a.

6. RNC Program

a. Program Description

The RNC Program encourages homebuilders, including HECO customers who are building their own homes, to reduce electricity consumption in newly constructed homes. To market the program, HECO makes presentations to builders and architects and works closely

with the Building Industry Association of Hawaii ("BIA"). Since most new construction projects have long lead times, HECO will open an application for the customer/developer as soon as it becomes aware of the project. The program promotes the installation and use of solar water heaters, heat pumps, high efficiency electric water heaters, and high efficiency electric water heaters coupled with load control devices in newly constructed homes. HECO T-11 at 50; HECO-1102 at 31.

HECO is proposing to increase the customer incentive level for solar water heating systems as discussed in Issue No. 4. In addition, the program promotes the installation and use of a variety of energy efficiency measures such as Energy Star double pane windows, increased insulation, skylights, and Energy Star appliances. HECO FSOP at 50.

Under the RNC Program, HECO will also offer financial incentives for bundled measures contained on the "Hawaii BuiltGreen" checklist through a partnership with the BIA of Hawaii. HECO T-11 at 51-52. The BuiltGreen Program has been designed to encourage new home developers to design their new products with energy saving measures built-in. HECO would offer four levels of energy saving measures that the developers can select from: Bronze, Silver, Gold and Gold Plus. Each level builds upon the level before it, making it easier for the developer to select a higher level of savings to implement. HECO FSOP at 50.

In the Bronze level, the developer needs to select a central air conditioning system with a SEER of 13 or better, Energy Star ceiling fans, and CFLs. The Silver level includes the same requirements as the Bronze level and adds Energy Star clothes washer, refrigerator, wall and ceiling insulation and skylights. The Gold level includes the same requirements of the Silver level and adds Energy Star windows.

Thus, for example, if a developer achieves a bronze level by installing high efficiency air

conditioning and electric water heating, CFLs, and ceiling fans, the developer would qualify for a \$250 incentive. If the developer went further and in addition to everything in the bronze level, also installed skylights, increased insulation in the ceiling and walls (above and beyond what is required by the Model Energy Code), and installed Energy Star appliances, the developer would qualify for a higher incentive. These higher incentives, as shown in HECO-1107, range from \$250 for a Bronze rating to \$836.25 for a Gold rating. HECO T-11 at 51-52.

In the Gold Plus level, the home must be built to the Gold level, but natural ventilation is required, replacing the air condition system. HECO FSOP at 50. More specifically, if a developer designs a house such that it takes advantage of the trade winds or fans, and eliminates the need for air conditioning, the developer will get double the rebate that the developer would get in any of the other categories. HECO's enhanced RNC Program will also make developers who build entire developments along zero net energy principles eligible for incentives for all of the homes within the development, including military housing. Tr. (8/29) at 347 (Block).

The eligibility criteria for the solar water heating components of this system are: (1) the system must be designed to provide at least a 90% solar fraction, (2) the system has to be installed using approved components, and (3) the system has to be installed in accordance with HECO's Standards and Specifications. The eligibility criteria were developed with the assistance of the solar industry. HECO maintains an approved list of accepted products, and to be placed on that list, a manufacturer must provide product specifications and a warranty statement. HECO T-11 at 50; HECO-1102 at 33.

The program's heat pump water heaters must be listed in GAMA's Consumer's Directory and meet a coefficient of performance of at least 2.7. The high efficiency electrical resistance water heating component of the program also requires water heaters to be listed in GAMA's

directory of certified water heaters, while requiring that they meet the energy efficiency requirement stipulated in HECO's current program. Qualifying efficiencies vary by the size of the water heater. Additionally, qualifying efficiencies exceed the City and County of Honolulu's Model Energy Code. HECO T-11 at 50-51.

Developers are offered an incentive to install an 80-gallon or larger high efficiency water heater with a load control device, consisting of either an autonomous timer with a preprogrammed schedule or a radio controlled switch, which shuts off the water heater during HECO's peak period of 5:00 p.m. to 9:00 p.m. each weeknight. The larger tank size is required to ensure that there is sufficient domestic hot water to meet customer needs. The larger tank size also makes it less expensive for the customer to select the solar water heating option at a later time, since the tank is also large enough to serve as a storage tank for a solar water heating system. The customer is given a monthly bill credit of \$5 for complying with program requirements and allowing HECO to keep the water heater off during the peak period by using the load switch. HECO T-11 at 51.

Since the rate case analysis, the CFL package has been added to the RNC program. In addition, various incentive levels have changed since the rate case, as discussed infra.

b. Customer Incentives

Detailed incentive amounts by measure were provided in HECO-1107. Since the rate case filing, the incentive level for the Tank and Timer program has been increased to reflect the ongoing \$60/year payment to customers who participate in HECO's cycling of their water heaters during periods of system constraint. Additionally, the incentive level for the Gold Plus option of the BuiltGreen program has been increased to 50% of the customer's cost, in order to provide extra encouragement for natural ventilation. See revised Exhibit 8.

c. **Eligibility/Participation**

Homebuilders, including customers who are building their own homes, are eligible to participate in the RNC Program. This includes any primary domestic residence, whether it is owner-occupied, rental or employment housing, as long as the premises will be occupied year round. However, housing covered under federal, state, city or county laws requiring the installation of heat pump or solar water heaters would not be eligible to receive an incentive for that technology, since they would not provide an additional reduction in HECO's peak load. All new residences must be within HECO's service territory to qualify. Residential developers of master-metered or common-area-metered facilities who wish to install a solar water heating system or a heat pump water heater may apply for eligibility under the Commercial and Industrial DSM Program. HECO T-11 at 52; HECO-1102 at 33.

In 2005, the expected levels of participation in the RNC Program were estimated to be 550 solar water heaters, 1,500 tank and timers, nearly 800 high efficiency electric water heaters, and nearly 300 Hawaii BuiltGreen homes, as shown in HECO-1106. First year participation levels for the proposed docket are: 100 Solar Water Heaters, 400 High Efficiency Electric Water Heaters, 500 Tank and Timers, and 1,000 CFLs. See revised Exhibit 8 at 7. Note that in the RNC Program, the CFLs are included in the bundling of measures in the Hawaii BuiltGreen homes and are not being proposed as a separate measure of the RNC Program, but will be included as a measure in the ESH Program. HECO T-11 at 52.

d. **Marketing**

In the marketing and advertising strategy proposed for the RNC Program, homebuilders are informed about the program during routine marketing calls by HECO's marketing representatives and/or technical specialists. In targeting the new construction market, it has been

important to establish cooperative working relationships with homebuilders and the architect/engineering community. Therefore, under the RNC Program, special presentations will be made to the architect and design community. HECO T-11 at 54; HECO-1102 at 34.

HECO will continue to work with developers and homebuilders to offer energy efficient options to new homebuyers. HECO will also continue to promote the Energy Star Homes Program, an EPA program. Under the EPA Program, new homebuyers in Hawaii who elect to purchase a home with a solar water heater can qualify for additional financing based on the reduced energy bill. HECO T-11 at 54; HECO-1102 at 34.

HECO will also continue to work with the DOD to incorporate energy efficiency options in its housing projects, and to work with private contractors who are working with the DOD on privatizing military housing. Additionally, HECO will continue to work with the BIA of Hawaii on the Hawaii BuiltGreen checklist. Offering financial incentive for measures included on the checklist will be an important addition to the RNC Program in the future. HECO T-11 at 54; HECO-1102 at 34.

e. Program Costs

The first year estimated cost for the enhanced RNC Program is \$1,972,207. In this budget, approximately \$1.3 million is for incentives. The remainder is budgeted for direct labor and outside services for program implementation, program evaluation, advertising, and other services and expenses associated with the delivery of the program to customers. See revised Exhibit 7.

Actual expenses incurred in 2005 for the RNC Program were \$1,147,208, approximately \$825,000 less than the first year estimate.⁵⁵ A major difference in the first year estimate is the

⁵⁵ The 2005 actual costs are reported in Appendix B (page 10) of the 2005 A&S Report.

addition of financial incentives for the energy efficiency measures contained on the Hawaii BuiltGreen checklist. These measures include high efficiency air conditioners, CFLs, and increased insulation among others. See HECO T-11 at 55. With the addition of these measures, the budget for customer incentives increased by \$444,836 from \$807,164 in 2005 to an estimated \$1,252,000 in the first year.

Direct labor expense in the first year is estimated to be \$126,774. This represents an increase of \$67,037 from the actual 2005 cost of \$59,737. The difference is the result of an adjustment for part of a full time equivalent of a contract laborer expected to be transferred to a regular HECO staff position. The transfer from contract employee to regular HECO staff position will offset some of the expenses charged to Implementation. See HECO T-11 at 55.

Implementation expenses in the first year are estimated to be \$379,903. This represents a \$152,635 increase from the 2005 actual expense of \$227,268. In part, this reflects the addition of a new contract labor position to coordinate all aspects of the new measures associated with the Hawaii BuiltGreen list. See HECO T-11 at 55.

The first year estimate shows an increase from \$482 to \$11,111 in the tracking budget compared to the 2005 actual expenses. There is an increase from \$736 to \$21,820 in the expenses for evaluation in the first year normalized estimate compared to 2005 actual expenses.

In addition, the first year estimate shows an increase from \$35,797 to \$115,500 in advertising from the 2005 actual expense. This increase in expenses for advertising is necessary to support the new measures being introduced in the program. See HECO T-11 at 56.

The estimated administration/miscellaneous cost for the first year shows an increase from \$16,074 to \$65,099 from the 2005 actual expenses, which reflects the overall increase in program support activity. See HECO T-11 at 56.

f. Program Impacts

The RNC program has resulted in a net reduction of 5.9 MW of demand and 15,974 MWh of energy since its inception in mid-1996 through 2005 (unless otherwise stated, subsequent program impacts will be stated at the gross generation level, net of free-riders).

The first-year savings goals are 0.8 MW and 2,542 MWh. After five years, HECO estimated the cumulative savings for this program to be 5.0 MW and 13,015 MWh. See revised Exhibit 10.

g. Program Cost-Effectiveness

The program is expected to be cost effective from the TRC perspective with a B/C ratio of 1.49. See revised Exhibit 10. In evaluating the cost-effectiveness of the RNC Program, HECO used a 84.1% net-to-gross ratio for energy and a 88.5% net-to-gross ratio for coincident demand reduction. These values are consistent with the results of the impact evaluation for program years 1998-1999. HECO T-11 at 57.

h. Issues

HSEA raised questions during the proceeding regarding the RNC Program's support for measures other than solar water heating. The "Tank and Timer" measure for which HECO provides rebates under the RNC program consists of a higher than standard efficiency 80 gallon or larger electric water heater coupled with a load management timer that effectively turns the water heater off during the entire evening peak period of 5:00 p.m. to 9:00 p.m. As such, the Tank and Timer measure provides energy savings due to the higher than standard efficiency water heater while providing substantial peak demand reductions resulting from the load control timer. Since program inception, HECO has encouraged the installation of over 5,000 "Tank and Timers". These measures contribute 2.8 MW of peak load reduction and 1,500 MWh of annual

energy savings. Based on HECO current reserve margin shortfall it would not make sense to discontinue rebates for this measure. See Response to HSEA/HECO-FSOP-4.

Recognizing that solar water heating may not be the choice of developers in all cases even with the HECO incentive, the incentive for the “tank and timer” DSM measure was developed to allow the developer other options. The level of the incentive was designed to make this DSM measure acceptable in the marketplace; it was not based on a certain percentage of the incremental cost. In 2005, new home builders installed 669 solar water heating systems, 723 high efficiency electric water heaters and 771 “tank and timers”, indicating that the level of incentives for each of these DSM measures has not unduly skewed the market in favor of one over another. See Response to HSEA/HECO-IR-4.

Customer equity also is an issue of concern. As such, HECO recognizes that not all new residential developments can install solar water heating systems as easily as others. For instance, developers of town homes and condominiums face interior and roof area limitations, additional piping difficulties in multistory applications, and other challenges that may make solar water heating installation less attractive than other options. The existence of the high efficiency electric water heater DSM measure provides developers of these homes another option to provide energy and bill savings to their customers. Responses to HSEA/HECO-IR-4 and 5.

The program has been very successful on the Tank and Timer side. The Tank and Timer locks keep water heaters off during HECO’s demand peak. In fact, HECO has found timer locks to be even more successful than solar water heating systems in keeping water heaters off of the demand peak. During inclement weather, people with solar water heating systems will sometimes turn the element on to get hot water during peak demand periods. In evaluations of water heating measures of those programs, HECO found that the Tank and Timer lead to greater

peak demand reductions than those achieved by the solar water heating systems. Tr. (8/29) at 353 (Block).

Since the inception of the RNC Program, HECO also has encouraged the installation of over 4,000 high efficiency electric water heaters in the RNC program. These measures contribute 161 kW of peak load reduction and 743 MWh of annual energy savings. Based on HECO current reserve margin shortfall it would not make sense to discontinue rebates for this measure. See Response to HSEA/HECO-FSOP-5.

At the same time, the program has been successful in promoting solar water heating. When HECO started the RNC program in 1996, there was not a single developer that offered solar water heating – it was not even as an option. In the ten years that HECO has been implementing the RNC Program, not only have a number of developers started offering customers to option to upgrade to a solar water heater, but there have even been a couple of developers that offer it as a standard feature now. Tr. (8/29) at 353 (Block).

All of the program components have been successful. It would be imprudent to stop either of those programs in lieu of just one measure. The programs do not undermine one another. Tr. (8/29) at 354 (Block).

Moreover, a number of studies show that about 20% of the customers who join the Tank and Timer program upgrade to solar water heating systems. The frequency of those upgrades is about the same as the frequency found in the natural market, among customers with regular water heaters. When HECO first designed the Tank and Timer program, it was designed with an 80 gallon high-capacity water heater, the same water heater that is used in solar water heating systems. In some cases, customers have to upgrade to a 120-gallon system. But by designing an 80-gallon system into the house at the time of design, customers have space to upgrade to 120

gallons at a later time. Thus, the Tank and Timer program actually facilitates solar water heating systems. Tr. (8/29) at 355-56 (Block).

C. NEW PROGRAMS

1. Residential Low Income Program

The proposed RLI Program will enable qualified low-income customers, as defined by the State of Hawaii guidelines for low income residents, to receive CFLs and high-efficiency water heating measures at no cost to them. HECO T-11 at 60. Originally, an equipment-servicing component would have allowed for an equipment tune-up for those customers who have room or central air conditioning. HECO T-11 at 60-61. That measure was removed when it became clear upon future evaluation that low income customers were unlikely to own the split or central air conditioners that would have been covered under the equipment servicing component. See HECO FSOP at 50.

A unique feature of the RLI Program is that it would be implemented by currently existing third-party agencies that typically deal with low-income customers. These so-called Community Action Program ("CAP") agencies would be under contract to HECO. This approach represents a commitment by HECO, where feasible, to outsource to the local contractor community some of the implementation responsibilities for its energy efficiency programs. In this case, the CAP agencies would be developing the marketing and promotional materials, recruiting and qualifying customers, certifying the installations, and scheduling the onsite work associated with the equipment-servicing component of the program. HECO will work with the selected CAP agencies in terms of providing training on the energy efficiency measures as well as marketing and outreach strategies. HECO T-11 at 61; HECO FSOP at 50.

The customer would not have to pay for the installed measures, all of which would be

given to the customer free-of-charge. The purpose is to promote energy efficiency to customers in the low-income segment and aid them in terms of improving their awareness of energy usage and efficient practices. All customers that fall into the 150% of federal poverty guidelines would be eligible to participate in the program. At present, the federal guideline for poverty is at an annual household income level of \$15,000 per year. As a proxy, HECO defined customer eligibility at the \$25,000 per year level. Based on a review of U.S. Census data for Oahu County, the total number of households falling into this bracket is about 60,000. HECO T-11 at 61-62.

Low-income customers are also eligible to participate in HECO's other residential programs (REWH Program and ESH Program). Customers will be encouraged to install other high energy efficiency measures through the various marketing and awareness materials that the CAP agencies will leave with the customer. Low-interest rehabilitation loans (for eligible Section 8 housing) will be explored with eligible customers to encourage their participation in the other residential programs. HECO T-11 at 62.

The measures promoted in the RLI program will include CFLs, water heater blankets, low-flow showerheads, faucet aerators, pipe insulation, and equipment servicing (cooling and/or refrigeration). HECO T-11 at 62. Since the rate case, the CFL package has been made identical to that of the ESH program (e.g., the number and cost of bulbs). See revised Exhibit 8. Additionally, as discussed supra, the Equipment Servicing measure has been removed from the program due to the limited market for Central Air Conditioning among low income customers.

Overall, HECO expects roughly 6,000 participants per year in the RLI Program in the first year. Of that total, 4,000 are expected to take the CFLs, and 2,000 are expected to take the water-heating package. See revised Exhibit 8. The RLI Program is expected to reduce HECO's

net system demand and energy usage by an estimated 3.0 MW and 13,166 MWh, respectively by 2010, as shown in revised Exhibit 10.

The first year estimated cost for the enhanced RLI Program cost is \$916,500, as shown in revised Exhibit 7. In this budget, \$589,000 is for incentives,⁵⁶ which represents 100% of the installed measure cost. The remaining \$327,500 is budgeted for the CAP agency for program implementation, program evaluation and other services and expenses associated with the delivery of the program to customers. See HECO T-11 at 62.

Evaluation of the RLI Program will consist of impact and process evaluations. The purpose of the impact evaluation is to measure the actual energy use and load shape savings achieved for the program, taking into account various market factors such as free-ridership and program spillover. The purpose of the process evaluation is to make an assessment of the program delivery effectiveness and customer perceptions of the program. Both impact and process evaluations are quite data intensive and must be initiated after the program has been in operation for one or more years. Therefore, the evaluation program is defined over a five-year period. HECO T-11 at 63.

In the first year, HECO will develop detailed evaluation plans that will outline the research objectives, sample sizes, analysis approaches, potential vendors, schedule and budgets. Evaluation contractors would be selected during this timeframe. The second and fourth years will be devoted to data collection, in support of both the impact and process evaluations. Data to support the impact evaluations will consist of onsite surveys and spot metering. Data to support the process evaluations will consist of surveys of both participating and non-participating customers as well as surveys of participating and non-participating equipment vendors. The

⁵⁶ See revised Exhibit 7.

third and fifth years will be devoted to conducting the evaluation studies. The process evaluation is particularly important for this program since so much of the program implementation responsibility lies with a third party contractor. HECO T-11 at 63.

HECO conducted a cost effectiveness economic analysis for the program, and found the program to be cost effective from the TRC test perspective with a B/C ratio of 4.96. See revised Exhibit 10. Note that this analysis was conducted in order to help inform the program planning process. HECO used a 100% net-to-gross ratio in the evaluation of the cost effectiveness of the RLI Program, which is consistent with industry practice. HECO T-11 at 64.

HECO has also considered the EPA's suggestion of a "neighborhood blitz," directly installing fluorescent lamps in residential and commercial buildings. HECO proposes to do that in its RLI Program using community action groups. Direct-install programs that do not leverage some of their labor from community action programs tend to be very expensive. Tr. (8/29) at 376-78 (Block). In HECO's proposal, the community action agencies would be under contract with HECO. Therefore, the cost of the agency would be covered under the cost of the RLI Program. Tr. (8/29) at 378 (Wikler).

2. Energy Solutions for the Home Program

The ESH Program will encourage customers to reduce their electricity consumption by adopting a variety of energy efficient end-uses in the home including Energy Star lighting, cooling, and other appliances. Financial incentives will be offered in order to reduce the cost burden faced by the customer when making investments in these types of equipment. The program will be structured in a prescriptive format where customers can choose one or more energy efficiency measures from a list of approved measures. The customer financing option for higher cost equipment that had been included in the original program has been removed. HECO

FSOP at 51-52; HECO T-11 at 64-65; HECO-1102 at 45.

The measures included in this program have changed since the rate case, in that Central Air Conditioning has been changed to Split System Air Conditioning due to the more prevalent market for the latter. Another change is that participants are now assumed to choose a single Energy Star Appliance from one of three possibilities (clothes washer, refrigerator or dishwasher), whereas in the rate case, it was assumed that the typical participant would choose all three. See revised Exhibit 8. Changes have also been made to incentive amounts, as discussed infra.

The objective of the newly proposed ESH program is to provide a comprehensive range of energy efficiency options that address several major appliance end-uses. The program is intended to work in parallel with the EPA's Energy Star program to maximize the benefits of that national initiative. Cash incentives would be offered to residential customers who purchase high-efficiency electric equipment. A market transformation initiative will be pursued for select equipment categories including CFLs and high efficiency air conditioning. HECO T-11 at 64; HECO-1102 at 45.

The test year peak demand and energy savings estimates for the ESH Program are 4.0 MW and 16,194 MWh. The ESH Program is expected to reduce HECO's net system demand by an estimated 12.1 MW and energy usage by an estimated 42,468 MWh by 2010. See revised Exhibit 10.

HECO will promote the CFLs component of this program to its residential customers. Each customer will be eligible to receive up to three CFLs; however, the precise mechanism for delivery has not yet been determined. At the time of the rate case filing, HECO was exploring the possibility of direct mail and/or working with a number of retail distributors who will offer

the discounted lamps at the time the customers make their purchases. Another possibility was to affix coupons to the product packaging, which can be redeemed for a cash rebate. HECO planned to work with a number of CFL manufacturers to certify and qualify their products for eligibility in the program. HECO T-11 at 65.

HECO tested a CFL Rebate Delivery program in the fourth quarter of 2005 named the "See the Light, Make the Change" program. The delivery mechanism for the program was assessed, and it was successful. Through its coupon rebate program, HECO delivered over 87,000 CFLs. HECO's cost was about one dollar per CFL delivered. As a result, HECO experienced over 1 MW of demand reduction. HECO expects to continue that same delivery method program in its interim Energy Solutions for the Home program. Tr. (8/29) at 309-10 (Hee).

In its report, EPA commented that "an alternate model being used in several residential lighting programs is to offer rebates directly to the manufacturers of CFLs." EPA Report at 21. This appears to be one of the unique circumstances that differentiates Hawaii from the U.S. mainland. Manufacturers are far physically from Hawaii and, because of that, the traditional relationships established locally have been with distributors. Thus, for Hawaii, HECO has found that those local relationships with the distributors result in more productive marketing efforts.

Two markets will be the focus for the air conditioning component of the program. The first market will be room air conditioners. HECO will offer incentives that will cover 25% of the cost difference between the standard equipment and the high efficiency room AC equipment that meets or exceeds recommended efficiency levels (currently at EER=9.8). The second market will be central air conditioners. HECO will offer incentives that will cover 25% of the cost difference between the standard equipment and the high efficiency central AC equipment that

meets or exceeds recommended efficiency levels (currently at SEER=12.0). HECO T-11 at 65; HECO-1102 at 46.

HECO opposes the EPA's suggestion that the Company establish a full old product return, collection, dismantlement, and recycling element to its residential air conditioner program to ensure that old units are not merely refurbished and sold back into any local or overseas marketplace. In Hawaii, such an element would cause substantial difficulties and expense because there is currently no infrastructure for that sort of program. The collection of an air conditioner involves breaking the unit down in a way that does not leak Freon. Thus, the substantial cost of recycling air conditioners would change the cost effectiveness of the program. Tr. (8/29) at 374 (Block).

Sometimes when a customer buys an air conditioner, the customer intends to air condition a part of the house that was not previously air conditioned. In that case, the customer will install the new air conditioner in the previously air conditioned room, and move the old air conditioner into a new room. In such a case, there is no reduction in load; the load is simply moved around. In most cases, however, customers buying new air conditioners are buying them to air-condition something that they want air conditioned, or replacing an old air conditioner that has failed. More often than not, therefore, HECO's rebate encourages customers to buy the most efficient air conditioner that they could possibly get, as opposed to a standard efficiency air conditioner. Accordingly, HECO's program is currently designed to achieve some energy savings and some demand reduction. Tr. (8/29) at 374-75 (Block).

In the high efficiency appliance component of the program, HECO will offer incentives to encourage customers to purchase high efficiency appliances that are Energy Star certified. This includes refrigerators, clothes washers, and electric clothes dryers. Incentives will cover

25% of the cost difference between the standard equipment and the Energy Star equipment.

HECO T-11 at 66; HECO-1102 at 49.

Other energy efficiency measures will also be offered as part of the program. HECO will provide incentives for customers to install ceiling fans and those who elect to have their air conditioning equipment serviced. Incentives of approximately \$40 will be provided for ceiling fans. Further, customers with central air conditioning will be eligible to receive incentives for having their equipment serviced (e.g., coil cleaning, filter replacement, etc.). HECO will qualify outside contractors to perform the servicing component of the program. HECO T-11 at 66; HECO-1102 at 49.

In determining the level of the customer incentives for the various energy efficiency measures, HECO took into account the level of savings of the particular measure and the length of persistence of the savings. This level of savings was then multiplied by the avoided costs to determine the value of the savings to HECO. Once the value of the savings was known, HECO determined levels of customer incentives that were designed to balance the benefit of the savings to the cost of promoting the technology. Detailed incentive amounts by measure were provided in HECO-1107.

Since the rate case, certain program incentive amounts have been increased as follows: Room Air Conditioning from \$59 to \$75; Packaged Air Conditioning from \$107 (for Central Air Conditioning) to \$110; Ceiling Fans from \$39 to \$40; and Equipment Servicing from \$47 to \$50. Other incentive amounts, however, have decreased as follows: CFLs from \$23 to \$7.50 (to reflect better information about equipment cost); and Energy Star Appliances from \$130 to \$50 (to reflect the assumption change of three appliances vs. one appliance, discussed supra). See revised Exhibit 8.

The Company financing option that had previously been included in the program has been removed. Third party financing has proven to be a more acceptable alternative given the regulatory requirements involved with utility financing. HECO FSOP at 51.

All existing HECO residential customers, including customers served on non-residential utility rates (master metered accounts) can participate in the ESH Program. Residential building owners, including owners of apartment complexes and employee housing units, are also eligible to participate. HECO T-11 at 68; HECO-1102 at 48.

In its revised estimates for this proceeding, HECO expects first year implementation of ESH measures as follows: 60,000 CFLs, 4,000 High Efficiency Room Air Conditioners, 625 High Efficiency Split System Air Conditioners, 2,500 Energy Star Ceiling Fans, and 5,000 Energy Star Appliances. See revised Exhibit 8 at 5.

Marketing and advertising efforts to reach customers in the ESH Program will consist of bill inserts and direct mailings, working in coordination with the REWH Program. Bill stuffers and other direct mailers will be mailed to customers' homes. The mailer will contain a "hotline" telephone number and the address of HECO's Internet site (www.heco.com) where customers can get more information on HECO's various Residential DSM Programs. Detailed brochures, incentive vouchers, instructions, and a list of certified contractors will be sent to those customers who call the hotline. HECO T-11 at 67-68; HECO-1102 at 48.

General media advertising will supplement the above marketing efforts. This may include newspaper advertising, television commercials, and radio spots. HECO will continue to contract with an advertising agency to assist in the marketing of the residential DSM programs. HECO, with the help of the advertising agency, will continually consider new marketing concepts and creative ideas to improve customers' awareness of the program and the

effectiveness of the marketing program. HECO T-11 at 68; HECO-1102 at 48.

The first year estimated cost for the enhanced ESH Program cost is \$1,969,445. In this budget, approximately \$1.2 million is for incentives. The remainder of approximately \$740,000 is budgeted for outside services for program implementation, program evaluation, advertising, and other services and expenses associated with the delivery of the program to customers. See revised Exhibit 7.

HECO's evaluation of the ESH Program will consist of impact and process evaluations. The purpose of the impact evaluation is to measure the actual energy use and load shape savings achieved for the program, taking into account various market factors such as free-ridership and program spillover. The purpose of the process evaluation is to make an assessment of the program delivery effectiveness and customer perceptions of the program. Both impact and process evaluations are quite data intensive and must be done after the program has been in operation for one or more years. Therefore, the evaluation program is defined over a 5-year period. HECO T-11 at 68.

In the first year, HECO will develop detailed evaluation plans that will outline the research objectives, sample sizes, analysis approaches, potential vendors, schedules and budgets. Evaluation contractors would be selected during this timeframe. The second and fourth years will be devoted to data collection, both in support of impact and process evaluations. Data to support the impact evaluations will consist of onsite surveys and spot metering. Data to support the process evaluations will consist of surveys of both participating and non-participating customers as well as surveys of participating and non-participating equipment vendors. The third and fifth years will be devoted to conducting the evaluation studies. HECO T-11 at 69.

HECO conducted a cost-effectiveness economic analysis for the ESH Program, in which

HECO found the program to be cost effective from the Total Resource Cost test perspective with a B/C ratio of 2.39. See revised Exhibit 10. In evaluating the cost-effectiveness of the ESH Program, HECO used an 85% net-to-gross ratio. This figure was based on industry experience and although somewhat higher than the measured net-to-gross ratios that resulted from the impact evaluation completed to date for other HECO residential programs, appears to be an appropriate benchmark for this type of program. HECO T-11 at 69.

3. RCEA Program

HECO filed an application requesting approval of a pilot RCEA Program on May 15, 2003 in Docket No. 03-0142. HECO filed its "Application/IR Responses Clarification," in the form of a revised application on October 7, 2004.⁵⁷

In its Application, filed November 12, 2004 in the Rate Case Docket, HECO proposed to recover the program costs for then proposed RCEA Program in base rates. In addition, HECO suggested that the proposed RCEA Program duration be extended from two years to five years (to match the five-year duration for other programs) and that the cost recovery mechanism for the proposed program be modified so that the program costs could be recovered entirely through base rates (rather than partly through base rates and partly through the DSM component of the IRP Clause), if the program was approved in Docket No. 03-0142.⁵⁸

The Consumer Advocate filed a Statement of Position in Docket No. 03-0142 on

⁵⁷ The RCEA program, as described in the application document, provides for the establishment of a baseline of awareness for customers. HECO proposed to take a survey of customers before the program started, as well as after the program was completed, to gauge how effective the awareness of the program is. Tr. (8/29) at 380 (Hee).

⁵⁸ Since the RCEA Program was proposed as a pilot program, it was possible that the RCEA program might not continue beyond the two years included in the program application. The Company indicated that, if the program was only approved as a two-year pilot program in Docket No. 03-0142, and was not subsequently extended, then the Company would return the program cost of the RCEA Program included in base rates to residential customers during the time that the program was not in service through a temporary rate decrease created specifically for that purpose. HECO T-10 at 51.

December 1, 2004, and HECO filed its reply on December 28, 2004. Following oral arguments on February 2, 2005, the Commission issued final Decision and Order No. 21756 ("D&O 21756") on April 20, 2005, which denied the application (as revised on October 7, 2004), without prejudice, citing concerns raised by the Consumer Advocate.⁵⁹

In D&O 21756, the Commission noted that: (1) it "understands HECO's need and desire to educate its residential customers about energy matters, including conservation," and (2) "[a]n educational program, such as the RCEA Pilot Program may be better suited as one component of a portfolio of DSM measures, which may be considered in other proceedings before the Commission, if HECO so chooses." D&O 21756 at 9-11.⁶⁰

When the Commission issued D&O 21756, HECO proposed in its rate case to implement a customer awareness campaign in lieu of the RCEA Program. Because there was a critical need to encourage residential customers to adopt cost-effective conservation practices, and in view of the Commission and the Consumer Advocate having indicated their understanding of HECO's desire to address this need, HECO added \$750,000 to its test year general advertising budget in order to enhance the Company's ability to educate and inform its customers about ways that they can save energy and reduce their peak demands.⁶¹ While the level of funding requested in the

⁵⁹ Although the Consumer Advocate opposed the application for the RCEA Pilot Program, the Commission noted in its D&O that the "Consumer Advocate makes clear that it does not dispute HECO's concern regarding its long-term ability to meet the growing energy demands of the residential customer class during the evening peak." D&O 21756 at 9.

⁶⁰ The Commission stated that:

The commission understands HECO's need and desire to educate its residential customers about energy matters, including conservation. We further recognize that educating residential customers to encourage energy conservations and make them aware of (1) measures that can be taken during the crucial 5:00 p.m. to 9:00 p.m. priority peak period; and (2) their impact on the need for future electrical generation may provide some relief to HECO in reducing peak loads, which ultimately will assist HECO in maintaining its generating system reliability guideline.

D&O 21756 at 9-10.

⁶¹ In order to fund the campaign, HECO increased the test year non-labor Informational Advertising expense by \$750,000. HECO RT-10 at 10; HECO-R-1001; response to CA-IR-533.b.

rate case would not allow a campaign as aggressive as was proposed in the proposed pilot RCEA program, it still would provide a greater opportunity for the messages to take root than what was originally budgeted for the 2005 test year. Response to CA-RIR-69.d.

HECO worked diligently to develop its awareness campaign proposal once it received D&O 21756 on April 20, 2005, and HECO provided details of the proposal as soon as they were available.⁶² The need for such an awareness campaign was supported by the findings of focus groups conducted in 2004 to test public reaction to messages about power system emergencies, such as a generation shortage. As documented in the Executive Summary of the report, Ward Research reported that:

- (1) "It was clear that many of the participants do not understand the 'peak' load concept, which leads to some misunderstanding of the EAM (emergency alert messages)."
- (2) "It was also clear that the masses will need some urgency in order to motivate a change in behaviors, particularly change that may result in somewhat less comfort or convenience."
- (3) "High users admitted that their comfort and convenience are important to them and, having adjusted to their monthly bill, they were unlikely to change. Many of the Medium/Low users thought that they were already doing everything they can to conserve, such that additional conservation would be unlikely."

The researchers concluded: "We believe that HECO must build an ongoing, mass media foundation, such that this message of urgency has context."

Energy savings can only be realized through actions of customers. The customers decide when to turn off the lights, use a fan instead of an air conditioner, or purchase a solar water

⁶² HECO raised and fully discussed the issue in its response to CA-IR-533 that was served on the Consumer Advocate and the DOD on June 8, 2005. The need for increasing the Informational Advertising expense was discussed again in the rebuttal testimony of HECO witness Alan Hee. HECO RT-10 at 10-12 and 21-23. HECO's response to DOD-RIR-56 shows the advertisements. Copies of radio scripts for ads produced as of August were provided in HECO's response to DOD-RIR-54. A DVD of the two TV spots produced as of August ("Groove" and "Cool Tips") also was included in HECO's response to the DOD RIR. HECO's responses to other information requests, such as CA-RIR-61, 62, 64, 65 and 69, and DOD-RIR-54, provided additional details.

heater. Thus, communication with customers is an important aspect of a successful conservation and energy efficiency effort.

HECO developed plans for a three-layered conservation and energy efficiency message. The first message revolved around the importance of using energy wisely at all times; the second would emphasize that it makes special sense to reduce energy use at peak times; and the third would create a basis for dramatically cutting the use of electricity during an emergency. The additional advertising amount was needed for HECO to expand and enhance its efforts to educate customers about the need to conserve at these three levels. Additional messages would be developed and produced, and HECO would procure an expanded presence in print and broadcast media. HECO RT-10 at 10. Participation in HECO's DSM Programs (programs that these messages will refer to by name) would be identified as one of the actions HECO's newly energy-aware customers can take to implement energy efficiency.⁶³

HECO began the initial phase of this campaign by producing TV and radio spots that reminded customers of the importance of conservation and some of the simple steps customers could take to help conserve at all times. The initial media components of this campaign began airing in October 2004, and focused on the first level of the message regarding general energy conservation and efficiency awareness.⁶⁴ The Company's objective was to build upon those initial efforts by increasing the media budget to ensure the messages are reinforced and to build upon the initial general energy conservation spots with more specific messages focusing on the

⁶³ The details of the communications plan in the form of an Integrated Campaign Presentation Powerpoint were provided in response to CA-IR-533 at 10-22. While participation in HECO's DSM Programs would be identified as one of several actions that customers can take to save energy, the details about the DSM programs would continue to be provided under HECO's separate DSM program advertising budgets. Response to CA-IR-533.b at 5-6.

⁶⁴ The initial media components of this campaign that began airing in October 2004 focused on the first level of messaging regarding general energy conservation and efficiency awareness. See HECO's responses to CA-RIR-65; DOD-RIR-54.

need to reduce energy use at peak times and during system emergencies.

In conjunction with its integrated advertising campaign, HECO also planned to work with the EPA to promote Energy Star as a residential and commercial solution for energy efficiency. For the residential market, HECO would develop educational advertisement and point of sale collateral materials. HECO would explore partnerships with appliance retailers and distributors. Commercial efforts would focus on design assistance and educational workshops and seminars for operations and facility managers. In addition, HECO would undertake a complete redesign and consolidation of the conservation and energy efficiency sections of HECO's website.

Response to CA-IR-533.b at 6-7.

According to the EPA Report, filed July 26, 2006, the RCEA Program "is similar to other awareness and educational approaches in the U.S. The underlying and reasonable assumption is that this awareness building better sustains knowledge, recognition, and acceptance of high efficiency purchasing choices and end use behaviors." EPA Report at 22.

The NAP identifies investing in education, training, and outreach as a "best practice" in the design and delivery of energy efficiency programs. NAP at 6-10. "Education, outreach, and training should be provided to trade allies as well as customers. Some programs are informational only programs." NAP at 6-35. This recommendation is made by the NAP despite the recognition that "Capturing the energy impacts of energy education programs has proven to be a challenge for evaluators for various reasons. [E]ducation and training efforts are not always designed to achieve direct benefits. They are often designed to inform participants or market actors of program opportunities, simply to familiarize them with energy efficiency options. Most evaluations of energy education and training initiatives have focused on process issues." NAP at 6-49 to 6-50.

In this proceeding, HECO has requested that, if the additional funds HECO proposed to spend for informational advertising in HECO's 2005 test year rate case are not considered in that case, the Commission approve the recovery of costs related to the RCEA Program in this docket. HECO FSOP at 80.

D. PROGRAM MODIFICATIONS

1. RDLC And CIDLC Programs

HECO filed applications requesting approval of: (1) a Residential Direct Load Control ("RDLC") Program, on June 6, 2003 in Docket No. 03-0166, and (2) a C&I Direct Load Control ("CIDLC") Program, on December 11, 2003 in Docket No. 03-0415. The Commission approved (1) the RDLC Program, as modified by a stipulated agreement between HECO and the Consumer Advocate (filed June 30, 2004), by Decision and Order No. 21415 issued October 14, 2004, and (2) the CIDLC Program, as modified by a stipulated agreement (filed July 15, 2004), by Decision and Order No. 21421 issued October 19, 2004.

By Decision and Order No. 21725, filed April 8, 2005, the Commission approved HECO's request to modify the eligibility criteria for its RDLC Program to include residential customers that are master metered, as a pilot program, provided that HECO requires its master metered customers participating in the RDLC Program to notify all persons who may have their water heaters disconnected of the potential for such an event to occur.

On April 8, 2005, the Commission approved HECO's latest version of its CIDLC Program Contract, as amended to correct for certain minor omissions. Decision and Order No. 21726 (April 8, 2005), Docket No. 03-0415.

On March 30, 2006, HECO requested approval to increase the 2006 equipment budget for the CIDLC program by \$148,000 to reflect projected expenditures for the year. Additionally,

on April 10, 2006, HECO requested approval to modify the liability and indemnification provision in the CIDLC Program Contract. The requests were approved by Decision and Order No. 22587, issued June 30, 2006, in Docket No. 03-0415.

By letter dated March 30, 2006, HECO requested Commission approval to increase the 2006 budget for the RDLC Program by \$404,550, from \$3,265,410 to \$3,669,960, to respond to an increase in Outside Services-Equipment Installation cost. The increase was necessary for HECO's subcontractor to revise its installation plan to comply with the opinion of The Board of Electricians and Plumbers that the installation of the residential load control switches had to be done by a licensed journeyman electrician. This increase in the budget will provide funding to allow HECO to continue to acquire controllable peak load through the RDLC Program in 2006. The Commission approved the requested increase by Decision and Order No. 22961, issued October 19, 2006 in Docket No. 03-0166.

At the panel hearings, HECO stated that it intends to file proposed modifications to its load management programs by the end of the year. Tr. (8/29) at 314 (Hee). As has been indicated in other filings, HECO intends to add a residential air conditioning load control component to its RDLC Program, and intends to offer expanded options, including Voluntary Load Control and Small Direct Load Control program components, in its CIDLC Program.⁶⁵

For the first year, the peak load reduction goal set for the enhanced CIDLC Program is 3.0 MW. The CIDLC Program is expected to reduce HECO's demand by an estimated 26 MW by 2010. See revised Exhibit 7. Since this is strictly a load-reducing program, HECO assumes that there are no associated energy savings.

⁶⁵ These elements will tap markets that typically do not participate in DLC programs. The prior program design only anticipated having large commercial and industrial participants. See revised Exhibit 8.

The first year cost estimate for the enhanced CIDLC Program is \$1,699,911. Of this amount, approximately \$230,000 is for incentives. The remaining \$1.5 million is budgeted for direct labor and outside services for program implementation, equipment and installation, advertising, and other services and expenses associated with the delivery of the program to customers. See revised Exhibit 7.

The first year peak load reduction estimate for the enhanced RDLC Program is 6.1 MW. The RDLC Program is expected to reduce HECO's system demand by an estimated 14.7 MW by 2010. See revised Exhibit 10. Since this is strictly a load reducing program, HECO assumes no associated energy savings.

The first year cost estimate for the enhanced RDLC Program is \$3,704,906. Of this amount, \$375,773 is for incentives. The remainder of approximately \$3.3 million is for direct labor and outside services for program implementation, advertising, and other services and expenses associated with the delivery of the program to customers. See revised Exhibit 7.

2. Load Management Marketing

With respect to the marketing of the RDLC and CIDLC Programs, HECO proposed to increase its estimate of RDLC advertising expenses in its 2005 test year rate case by \$250,000 to reflect a full year direct mail campaign, telemarketing, and the addition of a customer recognition campaign to retain previously enrolled customers, and to add an advertising component (increasing test year rate case expenses by \$50,000) to the CIDLC budget included in base rates.

The reasons for the additional marketing expenses of \$250,000 for the RDLC Program and \$50,000 for the CIDLC Program are addressed in HECO's M&E Report filed December 2, 2005, and were addressed in the response to CA-IR-533.b, and in HECO RT-10 (pages 5-9).

E. SWAC PROPOSAL

1. Introduction

On the second day of the hearings, HREA submitted a proposed hearing exhibit, HREA Hearing Exhibit 1, which provided a "Brief History of Deep Water Cooling". Tr. (8/29) at 251-53. During the course of the hearing, HREA indicated that it wanted to propose a \$500/ton offset customer incentive for SWAC systems, and that it might be part of the CICR Program or CIEE Program. Tr. (8/29) at 337, 339, 340, 425 (Bollmeier, Rezachek).

On the fourth day of the hearings, HREA submitted a second proposed hearing exhibit, HREA Exhibit 2, "HREA Proposal for Inclusion of Seawater Air Conditioned District Cooling Systems on HECO's CICR Programs." Tr. (8/31) at 1008-1010. Under HREA's proposal, HECO would provide a \$500 per ton offset incentive payment (in the form of a prescriptive rebate), with a cap of \$500,000 per customer, in HECO's CICR Program, to customers who install a Seawater Air Conditioning ("SWAC") system that would displace existing electric powered air conditioning equipment. HREA's proposal is intended to help Honolulu Seawater Air Conditioning, LLC ("Honolulu SWAC") fund the construction of 25,000 ton central SWAC-based chiller plants that would produce, distribute, and sell chilled water to nearby buildings.

The Commission admitted into the record HREA Hearing Exhibit 2, and approved an addendum to the procedural schedule for the parties to submit information requests ("IRs") to HREA regarding the hearing exhibit, HREA to respond to the IRs, and the other parties to submit position statements on the hearing exhibit.

On September 8, various parties, including HECO, the Consumer Advocate and LOL, submitted IRs to HREA concerning its SWAC proposal. HECO and the Consumer Advocate requested information regarding (1) the SWAC technology, (2) the degree to which SWAC

developers are ready to deploy a fully-engineered, economically-viable technology in Hawaii's energy market, and (3) the cost-effectiveness of the technology in Hawaii. This information was intended to help answer whether and to what degree customer incentive payments (i.e., in the form of rebates, or otherwise) may be appropriate and/or necessary.

As a result of a one week enlargement of time, HREA submitted IR responses on September 22, 2006 (but objected to providing confidential information without a protective order), and included a Preliminary Statement in which it claimed that SWAC systems should be included in the CIEE Program, which would provide prescriptive rebates of \$500/ton. HREA submitted an Errata Sheet on September 29, 2006. On October 6, 2006, HREA filed a "Supplemental Position Statement" in which it proposed (1) a \$500/ton rebate for SWAC systems, and (2) a \$500,000 per customer rebate limit. On October 10, 2006, HREA submitted certain confidential information in response to the information requests pursuant to Protective Order No. 22929 (October 6, 2006).

HECO, the Consumer Advocate and HSEA filed Statements of Position or Comments on October 6, 2006. See HECO's SWAC Statement of Position ("HECO SWAC SOP") filed October 6, 2006.

2. HREA's Proposal

The first of Honolulu SWAC's proposed systems would deliver chilled water from a centralized district cooling plant to downtown buildings, eliminating the buildings' need to use its existing air conditioning compressors and cooling towers. (It is not clear whether a building would retain these facilities for use as back-up.) The chilled water is a result of cold seawater that is pumped from the bottom of the sea (i.e., at a depth of 1,600 to 3,000 feet in Hawaii) and is passed through a heat exchanger (and in some cases, is chilled to a lower temperature through

the use of conventional electrically operated air conditioning compressors).⁶⁶

HREA is requesting that (1) prescriptive rebates equal to \$500/ton replaced at the building to be paid to customers who hook up to the SWAC system; and (2) the annual maximum rebate amount to per customer be increased to \$500,000 from the current \$250,000 per customer. The proposed \$500/ton prescriptive rebate would be greater than the rebate that would be generally available through the CICR Program. Preliminary analysis by HECO indicated that the per ton rebate available through the CICR Program would be between approximately \$150/ton and \$230/ton. HECO SWAC SOP at 2-3. The total rebate for one system could be as much as \$12.5 million. Tr. (8/29) at 343 (Rezachek).

In Hearing Exhibit 2, HREA requested that rebates be paid from HECO's CICR Program. On page 3 of Hearing Exhibit 2, HREA maintained: "(N)otwithstanding the fact that HECO currently provides a variety of rebates to a variety of technologies in its other programs, HREA understands that inclusion of SWAC in the CICR would be more appropriate than any of the other CI-DSMs." However, in HREA's response to HECO's IRs, filed on September 22, 2006, HREA recommended that the rebates be paid from HECO's CIEE Program rather than from HECO's CICR Program. See HREA response to post-hearing IRs, filed September 22, 2006 at

⁶⁶ As stated in Section 13.2.2 of HECO's IRP-3 report, SWAC is considered to be a renewable energy technology that is emerging as a possible energy option for reducing the electricity requirement for air conditioning for commercial customers. Like other emerging technologies it is difficult to assess the timing of the commercial viability of the technology in a specific location. While HECO welcomes the development and installation of SWAC systems in Hawaii, at the time the DSM measure screening analysis was being conducted in the IRP-3 planning process there was substantial uncertainty as to when it would be installed and the date commercial operations would commence. Response to HREA/HECO-IR-7; see response to HREA/HECO-IR-5.

HECO's MAP analysis did not include SWAC district cooling systems. However, the analysis did include the potential for more efficient chilled water and ventilation systems for office buildings and hotels. Thus, the potential for energy savings in the facilities that would be targeted by the SWAC district cooling system has in part already been accounted for in the MAP analysis. HECO does not intend to update its MAP analysis at this time, but recognizes that a SWAC district cooling system, if realized, represents additional energy and demand savings potential because of the higher efficiency afforded by those technologies. Response to HREA/HECO-IR-3.

8-9. HREA contended: “(B)ased upon a comparative analysis of these two existing commercial and industrial DSM programs, however, SWAC is more appropriately placed in the Commercial and Industrial Energy Efficiency (“CIEE”) Program. HREA is not requesting that a special program be created for SWAC, only that SWAC be placed in a program that will provide the appropriate level and type of rebate for this technology.”

HREA further contended in Hearing Exhibit 2 that 25,000 tons of SWAC would reduce HECO’s daytime system demand by 16 MW.

As discussed in HECO’s SWAC Statement of Position (“HECO SWAC SOP”) filed October 6, 2006, the Commission should: (1) not adopt HREA’s request to establish a prescriptive \$500/ton rebate for seawater air conditioning district cooling systems in this proceeding, and (2) allow HECO to provide rebates for seawater air conditioning district cooling systems through its CICR Program in accordance with the provisions that govern that program. HECO SWAC SOP at 11.

3. HECO’s Position

a. Rebate Under The CICR Program

HECO supports HREA’s efforts to establish a SWAC system on Oahu. In fact, HECO has offered its headquarters building located at 900 Richards Street as a potential site for the system.⁶⁷ HECO also agrees with HREA that sea water air-conditioning, if shown to be cost

⁶⁷ The SWAC project has the potential to provided significant levels of renewable energy on Oahu to help meet the State’s RPS, but there still are uncertainties regarding the project.

For example, the timeframe in which the energy savings can reasonably be expected are uncertain at this time, in part because information regarding SWAC’s schedule (including the time required to sign up customers and to obtain bond financing, do environmental reviews, obtain needed permits, order equipment for and install the SWAC plant and distribution system) has not been provided. See Tr. (8/29) at 497-99. HREA did not provide such information in its initial IR responses on the grounds that the information was confidential, and did not include any further information regarding the schedule in its confidential responses.

effective, should be eligible for DSM program rebates. The rebate should be covered under HECO's CICR Program. HECO SWAC SOP at 4.

The CICR Program was designed to encompass the installation of energy efficient equipment not specifically identified in any of the other prescriptive DSM programs. These include DSM measures that are not widely available in the market and where HECO does not have previous experience documenting the measure savings. As discussed in HECO T-11 (Wikler), Docket No. 04-0113, on page 32, "(t)his program was developed to address the large number of DSM measures that are available, which, due to the limited potential size of the market for these measures or to the site-specific savings resulting from their installation, do not lend themselves to a prescriptive rebate program design. These measures include the redesign of air conditioning systems and the installation of controls on various energy using systems." Mr. Wikler further noted (HECO T-11 at 33) that "(t)he CICR Program applications typically require pre-monitoring of a facility prior to the installation of the energy efficiency measure, and post-monitoring after the device has been installed and is operational".

The CICR Program also has provisions that require an independent third party review the proposed project if the rebate is projected to be greater than \$25,000. This provision enhances the validity of impact results from more complicated projects. HECO SWAC SOP at 5.

In HREA's response to HECO's IRs, HREA recommended that the rebate be paid from HECO's CIEE Program rather than from HECO's CICR Program. HREA maintained that "the CIEE program is more appropriate for SWAC than the CICR Program because there is already a High Efficiency Cooling ("HE Cooling") component to the CIEE program. This HE Cooling

It also is uncertain as to what levels of DSM support above the current CICR Program level may be necessary or appropriate (given the forms of support, such as tax incentives and special purpose revenue bonds) available to SWAC. See Tr. (8/29) at 483-494; HECO SWAC SOP at 10-11.

component already deals with more efficient chillers in commercial and industrial applications.”

HREA response to post-hearing IRs, filed September 22, 2006 at 8-9.

However, in HECO’s CIEE Program, rebates for high efficiency chillers are based on how much a chiller exceeds an efficiency benchmark. For example, super efficient chillers get a higher rebate per ton than chillers that just meet the efficiency benchmark. Generally, the rebates range between \$20/ton and \$55/ton and are significantly less than what HREA is requesting. HECO SWAC SOP at 9.

b. Rebate Level

HREA contended in Hearing Exhibit 2 that the rebate level in the CICR program should be adjusted because, among other reasons: (1) the price of oil and the cost of electricity have substantially increased since the CICR formula was developed; (2) the rebate is more than 10 years old and has not been adjusted to reflect the higher net present value of avoided demand and energy; (3) based on a comparative analysis of current customer energy and demand requirements for conventional air conditioning and the savings achieved through SWAC, the estimated rebate under the CICR program for SWAC would be in the range of \$200 - \$250/ton; and (4) the current rebate is less than the equivalent rebate provided for solar water heating systems. See HREA Hearing Exhibit 2 at 2.

The appropriate rebate level is not based on the price of oil or the cost of electricity, without consideration of other factors. In fact, higher electricity prices should make energy efficiency measures more cost-effective for participants, which can reduce the need for utility rebates. In DSM program design, one of the key considerations utilized to set customer rebate levels is to set them at levels that are necessary to motivate customers to adopt cost-effective DSM measures (i.e., move the market) and not necessarily on the basis of participant costs or on

the basis of avoided capacity value. The \$0.05/kwh and \$125/kw rebate levels in the CICR Program have resulted in excellent customer response. In five out of the last six years, HECO's CICR Program has exceeded its program budgets for customer rebates. Therefore, the level of customer response in this case should be an indication that the existing rebate levels are more than sufficient to support program participation and that there is no basis for selecting different rebate levels. HECO SWAC SOP at 6; responses to HREA/HECO-IR-3 and -8.

Ratepayer funded DSM programs need to strike a balance between offering customer rebates to motivate customers to install energy efficient measures and/or adopt new technologies versus overpaying rebates and/or providing rebates to customers who would have installed the energy efficiency measure even without a utility DSM program. If HECO were to increase its CICR Program rebate level, ratepayers could end up paying more than is necessary to customers who are already being sufficiently encouraged to install DSM measures under the current rebate levels. HECO SWAC SOP at 6; response to HREA/HECO-IR-8.

Under the provisions of the CICR Program, HECO would pay rebates to customers who connect to the SWAC system a rebate based on \$125 per kW reduced, plus \$0.05 per kWh for the projected annualized energy savings. Expression of the rebate in terms of \$/ton of cooling eases the understanding of the monetary value of the customer rebate, but is dependent on the efficiency of the full SWAC system. Information provided by HREA in response to HECO's IRs was not sufficient to perform a complete analysis of the efficiency of the proposed SWAC plant. Therefore, a precise conversion of the CICR Program customer rebates into a \$/ton estimate could not be made. However, HECO's preliminary analysis indicates that the rebate would be between approximately \$150/ton and \$230/ton. HECO SWAC SOP at 7.

If additional information is provided by HREA that indicates the level of rebate is

inadequate to move the market (e.g., if HECO found that the SWAC project returns were marginal at the current levels of CICR Program customer rebates), HECO would conduct additional analysis to evaluate if a higher rebate may be warranted and would then seek Commission approval for a rebate level for the SWAC technology greater than the CICR Program rebate for other customized energy efficiency measures. HECO SWAC SOP at 7-8.

In addition, rebates could still be considered for SWAC even if it did not pass the TRC test. (For example the REWH Program design and customer rebates for solar water heating take into consideration the equity of offering substantial opportunities to residential customers to participate in DSM programs. The Commission may choose to consider other potential benefits of the SWAC systems.) However, before either of these options could be considered, HECO would need more information regarding the project economics from the perspective of SWAC customers to ensure that the additional rebate is necessary to move the market and not just adding to the profits earned by the project. HECO SWAC SOP at 7-8.

HREA's contention that the CICR Program rebate is not as high as HECO's rebate for solar water heating systems, in terms of peak capacity reductions, is correct. However, solar water heating systems are currently one of the few major energy conservation measures of which residential customers can take advantage. Water heating in Hawaii is the end use that uses the most electricity in homes that do not have air-conditioning. In contrast, commercial and industrial customers have many alternative cost-effective technologies available to them to effect energy efficiency. Thus, for customer equity and consistency with HELCO and MECO reasons, and because the federal residential solar water heating tax credit expires at the end of 2007 (unless extended by Congress), HECO has proposed to increase the residential solar water heating rebate to \$1000 from \$750. HECO's FSOP at 44-45; HECO SWAC SOP at 8. HREA

supports that proposal. See Tr. (8/29) at 499 (Rezachek).

At the Energy Efficiency Docket hearings, HREA indicated that the purpose of its proposed \$500/ton rebate is to offset interconnection costs, thereby increasing the likelihood that customers will connect to the SWAC system. Tr. (8/29) at 487, 490, 492-93 (Rezachek). However, in HREA's oral testimony presented at the panel hearings, Dr. Rezachek, when questioned about the rebate per ton, stated "[a]s I said, our estimated cost of interconnection is about \$300." Tr. (8/29) at 487. Therefore, it is not clear, either in the documents provided by HREA or in their panel hearing testimony, why the rebate request should not be \$300/ton rather than the \$500/ton requested by HREA if the proposed rebate is based on the customer's interconnection cost. HECO SWAC SOP at 8-9.⁶⁸

c. Other Contentions

In its Hearing Exhibit 2 (page 1), HREA contended that: "(E)ach 25,000 ton SWAC system helps HECO avoid up to 16 megawatts of additional demand of electricity production." However, this may be correct at the time of the aggregate customer demand peak, but it is not correct for HECO's system peak demand. The customers' peak demand occurs during the day, while HECO's annual demand peak occurs in the evening, during the period between 5:00 pm and 9:00 pm. Thus, HECO estimates that the SWAC system (assuming it reduced the daytime peak by 16 MW, as SWAC estimated) would reduce HECO's peak demand by approximately 8 MW. In the absence of the SWAC system, it is likely that some of this 8 MW would still be achieved as customers replace aging equipment and convert to more efficient equipment in order to receive the rebates through HECO's other DSM programs. HECO SWAC SOP at 9-10.

⁶⁸ It also was not demonstrated why Honolulu SWAC should not use another mechanism to overcome a customer's upfront cost "barrier". Tr. (8/29) at 494-97.

F. ELECTROFLOW TECHNOLOGY

There was no proposal submitted in this proceeding regarding “Electroflow Technology”. Nonetheless, after the hearings LOL submitted an information request (as part of the process for submitting IRs regarding SWAC systems) to HREA asking it to “elaborate on Electroflow.” HREA responded on September 22, 2006.

Since LOL’s request and HREA’s response were not properly submitted, HECO will only briefly comment on HREA’s submission.

In its submission, HREA quoted from the ElectroFlow web-site: ElectroFlow is an internationally renowned state of the art energy savings and power conditioning system, with proven performance and satisfied customers in 105 countries worldwide. ElectroFlow is the only integrated modular system in the world specifically customer-engineered to effectively and economically optimize power quality with guaranteed electric savings of up to 34%, and nominal payback of less than two years, without any disruption to equipment or machinery. ElectroFlow is versatile and is available in different sizes based on a facility’s requirements.

ElectroFlow’s multistage system is triple protected, with each stage independently monitored, protected, and activated, resulting in simultaneous addressing of multiple problems and functions. This eliminates the need to purchase a number of different devices to correct each anomaly.

HREA further contends that ElectroFlow technology could be applied on the customer-side of up to 400 MW in five years resulting in 25 MW to 40 MW of reduced demand on HECO’s electrical system. In addition, HREA claims that ElectroFlow technology could free up to 20% of the kVa capacity in transformers and switchgear resulting in 2% to 5% additional capacity on the system.

HECO supports efforts to find additional technologies that save energy. HECO also agrees that ElectroFlow technology, if shown to be cost effective, should be eligible for DSM program rebates. In fact HECO has looked at the ElectroFlow technology here in Hawaii and may pay rebates for this technology under the CICR Program.

The CICR Program was designed to encompass the installation of energy efficient equipment not specifically identified in any of the other prescriptive DSM programs. These include DSM measures that are not widely available in the market and where HECO does not have previous experience documenting the measure savings. This program was developed to address the large number of DSM measures that are available, which, due to the limited potential size of the market for these measures or to the site-specific savings resulting from their installation, do not lend themselves to a prescriptive rebate program design. These measures include the redesign of air conditioning systems and the installation of controls on various energy using systems. The CICR Program applications typically require pre-monitoring of a facility prior to the installation of the energy efficiency measure, and post-monitoring after the device has been installed and is operational. HECO T-11 at 32-33.

The CICR Program also has provisions that require an independent third-party review of the proposed projects if the rebate is projected to be greater than \$25,000. This provision enhances the validity of impact results from the more complicated projects.

ElectroFlow and other technologies of similar design achieve electrical savings by conditioning the power within a facility. This includes voltage improvement and stabilization, three phase balancing, surge and transient suppression, harmonics filtering, power factor improvement and kVa capacity improvement. As such, the savings from these types of technologies are extremely dependent on the condition of the power at a given facility. A facility with very poor power conditions will achieve greater savings than a facility with a good internal distribution system and better power conditions. Also, the types of loads that exist at a facility will have a big influence over the electrical savings. For example, a facility with a lot of inductive loads like electric motors will theoretically have greater savings from the kVa capacity

improvements than facility with predominately resistive loads. ElectroFlow's own marketing material includes a table of paybacks based on various performance levels. See Exhibit A of HREA's Response to Post-Hearing Information Requests from Life of the Land on ElectroFlow Technology, file September 22, 2006, at 1.

Under the provisions of the CICR Program, HECO would pay rebates to customers who install an ElectroFlow system a rebate based on \$125 per kW reduced, plus \$0.05 per kWh for the projected annualized energy savings.

G. RELATIONSHIP BETWEEN THIS DOCKET AND HECO'S IRP-3 PROCEEDING

At the panel hearings, the Commission asked for recommendations from the parties concerning the relationship between this docket and HECO's IRP-3 proceeding. See Tr. (9/1) at 1028 (Hempling). The impact to the IRP plan proposed in HECO's IRP-3 docket would depend upon the decision in this docket as to the DSM programs proposed by HECO. The DSM programs proposed by HECO in this docket are consistent with the DSM programs included in HECO's preferred IRP Plan submitted in HECO's IRP-3 docket. Tr. (9/1) at 1029 (Hashiro).

If the DSM programs proposed in this docket are approved, then there would not be an impact to the preferred IRP Plan that was submitted. However, if there were changes to the DSM programs proposed, then HECO's preferred IRP Plan would have to be updated and an evaluation performed to review the impacts of those changes to the DSM programs. See Tr. (9/1) at 1029-30 (Hashiro).

IV. DSM MARKET STRUCTURE

The second Statewide Energy Policy Issue is: What market structure(s) is the most appropriate for providing these or other DSM programs (e.g., utility-only, utility in competition

with non-utility providers, non-utility providers)?

A. INTRODUCTION

The issue of market structure revolves around the question of whether DSM programs are more effective if administered by a utility or a non-utility program administrator. Program administration consists not only of program implementation (i.e., the delivery of the energy efficiency measures to the customer), but also includes the design, monitoring and evaluation, and overall oversight of the program. HECO FSOP at 15.

This issue should also be resolved within the parameters set by Senate Bill 3185, S.D.2, H.D.2, C.D.1 (2006 Hawaii Legislature), which was signed into law by Governor Lingle on June 2, 2006. Certain provisions of the Act set requirements as to how the Commission is to proceed should it decide that third-party administration of some or all of the DSM programs is appropriate. HECO FSOP at 15.

If the issue of market structure were to be resolved purely on the basis of the cost per unit of kilowatt-hour ("kwh") savings, then the case could be made that HECO has administered its programs in a very cost effective manner. For example, in comparison to the cost of 28 cents per annual kwh saved for Vermont's third-party energy efficiency utility, Efficiency Vermont, HECO has been able to achieve its savings at less than 24 cents⁶⁹. HECO FSOP at 15; HECO FSOP, Exhibit 4.⁷⁰ Therefore, contentions that broadly proclaim third-party administration will

⁶⁹ This cost includes the shareholder incentive, but excludes lost margins, which are not a direct cost of the DSM programs, but are an indirect result of the implementation of energy efficiency DSM programs that result in a reduction in the contribution to fixed cost recovery of the utility. HECO FSOP at 15 n.7.

⁷⁰ One of the conclusions to be drawn from HECO FSOP Exhibit 4 is that the use of a third-party administrator in Hawaii, similar to an entity such as Efficiency Vermont, is no guarantee that DSM programs will be delivered more effectively than by HECO. Response to RMI/HECO-IR-7.

be more cost-effective than utility administration have not been demonstrated⁷¹. In fact, HECO's DSM program cost structure not only results in lower total program costs, but its ratio of customer incentive payments to total program costs is higher than for Efficiency Vermont, indicating that HECO's program participants receive more "bang for the buck" in terms of an incentive to install energy efficient measures relative to Efficiency Vermont. HECO FSOP at 15-16.

Another major policy issue is whether the apparently conflicting financial motives of the utilities (to increase revenues by increasing kilowatt-hour sales) are reconcilable with energy efficiency program objectives of energy savings and demand reductions. These motives can be reconciled. The success of HECO's own energy efficiency programs supports its position that utility administration of energy efficiency DSM programs can be effective when the appropriate compensation mechanisms are in place. HECO FSOP at 16.

B. THE COMPANIES' EXISTING ENERGY EFFICIENCY PROGRAMS

HECO, HELCO and MECO (the "Companies") have been successful in their energy efficiency efforts under the existing market structure. From 1996 through 2005, the Companies' energy efficiency programs have reduced customers' consumption of energy by 2.4 million mwh⁷² and reduced peak demand by 66 MWs⁷³. The annual amount of energy saved through HECO's DSM programs has increased each year for the past three years, and HECO is nationally recognized for installing the highest number of solar water heaters in the nation. The Companies have been able to achieve these accomplishments in part because of utility compensation

⁷¹ Considering that the average life of these measures is 15 years, HECO's cost of energy efficiency is actually less than 2 cents/kwh (24 cents/kwh ÷ 15 years) making energy efficiency less expensive than any supply side option currently available in the State. HECO FSOP at 16 n.8.

⁷² Cumulative savings since program initiation. Gross generation level, including free-riders. HECO FSOP at 16 n.9.

⁷³ Gross generation level, net of (not including) free-riders. HECO FSOP at 17 n.10.

mechanisms that are in place. HECO FSOP at 16-17.

The Companies have been recognized by several different government agencies for the success of their solar water heating programs. As U.S. EPA Energy Star Program Partners and Home Certifiers, the Companies have worked with the EPA to develop a Hawaii-specific process to certify homes. As a result, over 8,700 homes have Energy Star homes have received Energy Star certification. In recognition for their contributions to energy efficient construction and environmental protection, the Companies have received Energy Star for Homes Outstanding Achievement awards over the past few years for sponsoring these Energy Star Homes. The Companies also certified eight companies as Energy Star Home Builders. HECO FSOP at 17.

In addition, the Companies have received recognition from the U.S. Department of Energy's ("DOE") for registering the most solar water heating systems on homes in the Western Region U.S. Million Solar Roofs Initiative. HECO FSOP at 17.

With respect to commercial and industrial customers, HECO has also supported the EPA Energy Star program by sponsoring workshops in Hawaii to promote and educate consumers and government customers on the use of EPA software tools that are used for commercial energy efficiency implementation. There are 14 Energy Star office buildings, government buildings, and hotels in Hawaii which were participants in HECO DSM programs. HECO FSOP at 17.

In addition to the above contributions to energy savings and demand reduction from HECO's energy efficiency programs, HECO's load management programs, which began in 2005, have enrolled an additional 6 MW⁷⁴ of interruptible load in 2005. These loads can be interrupted by the utility in anticipation of a short-term capacity shortfall, or can be interrupted automatically when system frequency drops to a predetermined set point as a result of an

⁷⁴ Gross generation level, net of (not including) free-riders. HECO FSOP at 18 n.11.

unexpected generation unit outage. The utility's direct involvement in interrupting program loads to reduce system demand and the need for the Company to plan for supply-side resources to serve that load means that these load management programs (and any future demand response programs) should remain under utility administration. HECO FSOP at 18.

C. MARKET STRUCTURE ALTERNATIVES

The parties to the docket discussed four market structure alternatives in settlement discussions:

1. Utility administration of all programs,
2. Non-utility administration of all programs,
3. Hybrid administration in which the utility would administer some programs, and a non-utility other programs, with the determination made on the basis of a set of criteria applied to each program, and
4. Competitive bidding for a single statewide administrator (exclusive of KIUC) in which the utility would be permitted to submit a bid for consideration. HECO FSOP at 18.

HECO's 2005 test year rate case testimony (Docket No. 04-0113) proposed utility administration of all programs. However, as a result of discussions with the other parties, and based on criteria HECO proposed to use to determine the appropriate market structure to administer DSM programs (i.e., utility versus non-utility), the Company acknowledged that in situations in which the utility does not possess a clear advantage, a third-party administrator (1) may provide the opportunity for more cost-effective DSM program delivery to certain underserved customer segments, and/or (2) may be a source of innovative delivery methods that could increase customer participation due to its prior experience working with these customer segments. Thus, HECO supports the development of a hybrid market structure. HECO FSOP at

19.

1. Hybrid Market Structure

The criteria HECO used to determine which proposed or new (as yet unidentified) DSM programs should be administered by the utility, and which by a third-party, are listed and described below. The list of criteria was developed based in part on a paper published by the Regulatory Assistance Project in May 2003 (a copy of which was attached as Exhibit 5 to HECO's FSOP). HECO FSOP at 19

1. Differential Expertise: Hawaii-specific technical and market expertise. Knowledge of DSM technologies, how technology applies to customer operations and their facilities, regulatory processes and procedures. Organizational expertise (i.e., the infrastructure already established to market, track, and report on the status of DSM programs). HECO FSOP at 19.
2. Depth and nature of customer relationship: The level of trust and credibility established, personal relationships with and access to customers, and knowledge of the customer's decision-making process, operations, and facilities. HECO FSOP at 20.
3. Cost of financing for programs funded with direct financing: Applicable for programs relying on a direct funding source that is not ratepayer funded (not applicable for programs which may utilize third-party financing). HECO FSOP at 20.
4. Cost structure to administer program: Qualitative factors, including historical costs and program cost-effectiveness, which may lead to more cost effective administration of programs. Lost margins (i.e., the recovery of fixed costs) are not considered a cost of the programs, as the recovery of fixed costs is related to the overall operation of the utility

rather than to the direct costs of administering and implementing the DSM programs.

HECO FSOP at 20.

5. Economies of scale or scope: The level of incremental cost for programs. This refers to whether or not the administrator's scope is statewide versus. by utility or by island.

HECO FSOP at 20.

6. Tight linkage to system operations: The need to be directly involved in the activation of load reduction measures to maintain system reliability. HECO FSOP at 20.

7. Efficiency loss in transition and continuity: The impact on trade allies whose businesses and livelihoods depend on the current DSM programs. From the perspective of system reliability, the need for immediate and effective resource acquisition that may be hindered by transition to third-party administration. HECO FSOP at 20.

8. Regulatory costs, ease of administration, and resource requirements: This includes impact on the Consumer Advocate and Commission such as the amount of internal Consumer Advocate and Commission resources required, or the lack thereof, to implement DSM program administration. Includes Commission administrative costs for competitive procurement, fund disbursement, and oversight/enforcement. Also includes the experience and ability of the administrator to understand the needs of the regulators and be able to respond effectively to their inquiries. HECO FSOP at 21.

9. Potential overlap or conflicts between administration of programs: This refers to marketing efforts where the ability of one administrator to offer customers a "one-stop shop", or package/cluster of DSM program options may be more effective than several different administrators marketing single measures that require the customer to contact different program administrators in order to deliver comprehensive solutions. Also, the

potential for these Commission approved programs to target the same customer segment that may lead to added programs costs due to duplication of effort. HECO FSOP at 21.

HECO developed a matrix that evaluated the DSM programs and customer segments that are included in its DSM program proposal in this docket against the above criteria. HECO FSOP at 21; HECO FSOP, Exhibit 6. A copy of the matrix is attached as an exhibit to this Opening Brief. The evaluation identified:

1. Some programs and customer segments as possibly being more effectively served under third-party administration,
2. Others being more effective under utility administration,
3. Some programs or customer segments that would be, on balance, more effectively served under utility administration, and
4. One program (the Interim Energy Solutions for the Home Program) that should be administered by the utility in the near term, but could transition to third-party administration at a later time. HECO FSOP at 21-22.

a. **Third-Party Administration Of Some Programs**

The Company proposed to have a third-party administrator for certain customer segments that are difficult to reach. A third-party may or may not be better suited to reach these customer segments. However, the Company has found that these customer segments are difficult to reach. A third-party administrator may provide the opportunity for more cost-effective DSM program delivery to these under-served customer segments, and/or may be a source of innovative delivery methods that could increase customer participation, due to the third-party's prior experience working with these segments. Response to CA/HECO-IR-3; Tr. (8/30) at 519 (Hee).

The Companies proposed that the Commission would select third-party DSM

administrators through a competitive procurement process. The third-party administrators would report to the Commission. The funding for the third-party administrators could be collected through the DSM surcharge and could be disbursed by the utility directly to the third-party administrator or on the directions of the Commission. This is similar to the process done in California. Tr. (8/30) at 713 (Hee).

Use of public benefits funds is not recommended. According to the July 2006 National Action Plan ("NAP")⁷⁵, public benefits funds are vulnerable to raiding⁷⁶, and funding levels are disconnected from the resource planning portfolio of energy efficiency and other resources⁷⁷. This is particularly a concern if the resources are not sufficient for the utilities to achieve their DSM program goals.

HECO considers the following customer segments likely to benefit from third-party administration because they are difficult to reach with DSM program options:

1. Residential low-income customers typically unable to participate in DSM programs because they cannot afford the first-cost necessary to install energy savings measures.

Even with the Companies working with governmental agencies already in direct contact with this customer segment, participation to-date has been limited. These agencies include Honolulu Community Action Programs and Maui Economic Opportunity.

HECO FSOP at 22.

2. Programs (such as the Pay As You Save program) that will benefit renters of individually metered housing units, both single family and low rise residential buildings. HECO

FSOP at 22.

⁷⁵ EPA facilitated the NAP, along with the U.S. Department of Energy. A copy of the NAP was attached as Exhibit A to HECO's Response to EPA Report.

⁷⁶ NAP at 2-8.

⁷⁷ NAP at 2-8, 3-19.

3. Low-rise multi- unit housing buildings (condominiums and apartment buildings) that are master metered. HECO FSOP at 22.
4. Small commercial customers in Schedule G. HECO FSOP at 22.

Also included among the programs that could be administered by a third-party are residential Energy Star appliance marketing programs. While these programs are directed at the general residential customer segment, which is not a particularly hard-to-reach customer segment (in contrast to those identified above), HECO does not possess any significant advantage over other parties that may be interested in pursuing this new program. Administration of this program by another party may also result in innovative marketing skills or approaches that can improve upon the expected customer participation relative to a utility-administered program. HECO FSOP at 22-23.

The same reasoning could also be applied to the Interim Energy Solutions for the Home (“ESH”) program approved by the Commission in Interim D&O No. 22420, although HECO has developed a significant level of experience and expertise through its efforts to date. The Interim ESH program involves point-of-sale rebates for approximately 180,000 compact fluorescent lamps (“CFLs”) on an annual basis. HECO already has a significant level of experience with the local CFL market via its pilot program implemented during the 4th quarter of 2005 and has begun the implementation of the approved interim program by entering into discussions with its manufacturer, distributor, and retail trade allies. If this interim program is determined by the Commission to be most effective under third-party administration, HECO will transition this program over to the third-party administrator in the manner approved by the Commission. HECO FSOP at 23. Placing the Residential Low Income and ESH Programs under a third-party administrator would represent approximately 20% of the budget that California requires for its

utilities to assign to third-party administrators.

Another program category that could be administered by a third party are those DSM programs that install energy efficiency measures using non-ratepayer provided funds (e.g., charitable or government funding) that results in a financing cost that is significantly lower than can be found in the market. Examples of such programs are as follows:

1. City & County of Honolulu Solar Roofs, Low-Income Solar Loan Program. In this program, HECO entered into a partnership with the City & County of Honolulu to offer installation loans at low interest rates to low- to moderate-income customers on Oahu by working with the Rehabilitation Loan Branch of the Department of Community Services. HECO FSOP at 24.
2. Maui Solar Roofs Initiative, Department of Energy. In September 2002, MECO formed a partnership with the County of Maui to increase the use of renewable energy by increasing the number of solar water heating systems installed in residences. The county provided a grant of \$250,000 to establish a revolving fund, administered by MECO, offering zero-interest loans to qualified homeowners. An additional \$300,000 has been added to the base amount of the revolving fund since 2002. HECO FSOP at 24.
3. U.S. DOE Million Solar Roofs Initiative. Under the initiative, HECO received two grants for a total of \$75,000 to market the solar water heating program with "Solar Fest" events in the community. MECO also received three grants for a total of \$150,000 to be used for public education on the benefits of solar energy, to support the development of financing strategies for solar installations on non-profit facilities and to construct a portable educational model home on energy efficiency. HECO FSOP at 24.

4. United States Department of Agriculture (“USDA”) Rural Utilities Service Grant. In May 2004, MECO received \$1.1 million in USDA funds to make solar water heating more affordable. MECO has been using the funds for the installation of renewable energy solar water heating systems on the island of Molokai under its Solar for Molokai Project. HECO FSOP at 25.
5. Big Island Solar Roofs Program. To increase participation in HELCO’s solar water heating program, HELCO entered into a partnership with the Hawaii Federal Credit Union that features two low interest solar loan programs. The first offered 0% loans with a five-year term to qualifying low income households. HELCO will pay the interest portion of the loans. The second program provides loans at a nominal rate of 3% with a five-year term. The objective of this program is to serve customers who do not qualify as low-income but who satisfy Hawaii Federal Credit Union lending criteria. HECO FSOP at 25.
6. Island of Hawaii Million Solar Roofs (“MSR”) Partnership. HELCO has received over \$145,000 in grant funding from the Department of Energy’s Million Solar Roofs Initiative since 2000. These funds have been used for the development of the Island of Hawaii MSR web site, the development of preferred financing resources for solar projects, PV workshops, and the design and installation of a PV system and educational display at Kalanianaʻole School. HECO FSOP at 25.

While these programs are examples of a program category that could be administered by a third party, HECO would continue to take advantage of non-ratepayer provided funds that promote awareness, educational opportunities, and low-income loan programs that support the DSM programs that it administers. HECO FSOP at 25-26.

Should the Commission adopt HECO's recommendations and decide that some or all of the aforementioned types of DSM programs should be administered by a third party, HECO requested that it be allowed to compete for the implementation of these programs at its discretion. HECO may decide to compete if it determines that there is an opportunity to cost-effectively deliver energy efficiency into these customer segments. If HECO were to be awarded the implementation of any of these programs, it would report to the third-party administrator based on the terms of the negotiated mutually agreed upon service contract. HECO FSOP at 26.

Even if HECO decided not to compete for program implementation in these areas, it would like to continue its participation in the process to ensure the effective delivery of energy efficiency measures in a collaborative manner with the Commission, Consumer Advocate, third-party administrator, and vendors. For example, HECO could assist the Commission with the development of standards, and/or in defining appropriate post-installation evaluation and measurement methods. HECO FSOP at 26.

In addition, the combined package of third-party administered programs and customer segments, along with the participation of the utility, could form an effective nucleus for a strong community-based initiative aimed at improving energy efficiency in geographically targeted areas around the state. HECO FSOP at 26.

If a third-party is permitted to provide some DSM programs, then there should be open channels of communication and effective management with the customers and between the utility and third-party administrator in order to mitigate any confusion that the customer may have by having multiple entities offering and maintaining the customer's energy efficiency efforts. See Tr. (8/30) at 584-89 (Hee and Wikler).

b. Utility-Administration Of Some Programs

i. Energy Efficiency Programs

The application of the market structure criterion led HECO to the conclusion that the remaining programs proposed by HECO in the Energy Efficiency Docket should continue under HECO's administration. Utility administration of the CIEE, CINC, and CICR programs as applied to large commercial and industrial customers in Schedules J, PP, PS, and PT, take advantage of the utility's local market and technical expertise and the depth and nature of the customer relationships that HECO has developed over years of serving these customers by responding to their business needs. HECO FSOP at 27.

HECO has also established professional relationships with architects, engineers, and developers that seek out HECO's expertise in energy efficient technology. These relationships with trade allies, owners, and developers, combined with their need to already notify HECO of service requests for new construction project developers, means that the infrastructure to administer, track, follow-up with, and deliver energy efficiency to these customers already exists within the HECO organization. HECO FSOP at 27.

Additionally, HECO has an account management process in place that provides a relationship with larger customers. This process manages every aspect of the customer relationship including such areas as routine billing inquiries, rate analysis, energy efficiency opportunities, and the need for additional electrical service. This process provides an established mechanism to deliver energy efficiency programs. HECO FSOP at 27.

These advantages over a third-party administrator that the utility already possesses translate into the ability to communicate and effect energy efficiency in an established environment of trust and credibility. This environment of trust is likely to result in greater rates

of DSM program acceptance by the customer than if a new administrator were to appear in the market and have to establish these same relationships. HECO FSOP at 27-28.

HECO has demonstrated its success in implementing DSM programs in specific customer segments such as the large Schedules J and P commercial customers. That is because the Company, over several years, has established customer relationships that are founded in trust and credibility, developed program and customer operations expertise, and has a history of cost-effective DSM program implementation in many of these customer segments. The Company has invested substantial effort, resources, and time to achieve these successes. Should a third-party take over administration of the programs that the Company proposes to continue to administer, the third-party will have to establish similar customer relationships, and the time, effort, and cost to establish such relationships would likely be significant. Response to CA/HECO-IR-5.

On balance, utility administration of the REWH program that targets retrofit residential solar water heating benefits from the long-standing relationships established with the solar contractors. HECO's solar water heating program has created a disciplined market served by reputable contractors installing standard, well designed, and reliable systems. However, competitive market forces are still at work, as each contractor sets its retail price at the level determined by demand and supply. Customers are saving energy and lowering their electricity bills, while at the same time HECO benefits from the load reductions during the peak period. HECO FSOP at 28; see Tr. (8/30) at 518-19 (Hee).

The RNC program benefits from HECO's long-standing relationship with all major housing developers such as Gentry Homes, Haseko, D.R. Horton, and Castle and Cooke. Over the years HECO has established its credibility with the housing developers and they have come to trust HECO concerning the new construction area. As is the case for DSM programs directed

towards large commercial and industrial customers, utility administration of the RNC program, as enhanced by the Hawaii BuiltGreen checklist, takes advantage of these relationships to administer and implement energy efficiency. HECO FSOP at 28; see Tr. (8/30) at 519 (Hee).

These residential programs (REWH and RNC) have sometimes not been cost-effective from a TRC test perspective. However, the standard cost-effectiveness tests applied to DSM programs do not capture all dimensions of the purchase decision. While most business decisions are based on expected financial returns, residential customers often make purchases for other reasons. For example, a residential customer may purchase energy efficient equipment, such as a solar water heating system, based on his/her personal environmental concerns and/or commitments. Thus, a TRC test on residential water heating programs may indicate a lower level of cost-effectiveness because participant decision-making is not solely economically based. HECO FSOP at 28-29.

Furthermore, non-quantifiable benefits of solar water heating are not included in the calculation of cost-effectiveness. Those benefits include the utilization of an environmentally clean, renewable energy source, and the contribution of solar water heating to the achievement of the state's renewable energy objectives. HECO FSOP at 29.

In addition, HECO has supported these programs not only for the energy savings and environmental benefits, but also because of the programs' ability to provide customer equity (i.e., the ability for residential customers to participate and benefit from energy efficiency programs that would not otherwise be offered solely on the basis of cost-effectiveness). HECO FSOP at 29.

Similar circumstances exist on the islands of Lanai and Molokai. MECO has been successfully working with the small communities on these islands to deliver energy efficiency to

these geographically isolated areas. Based on its experience, MECO recognized that without the assistance of the utility, these communities may be neglected under a third-party administrator. Therefore, MECO should be permitted to keep the Lanai and Molokai DSM programs under its administration, unless the Commission believes that those two islands can gain from an alternative administrative structure. HECO FSOP at 29.

ii. Load Management Programs

Load management programs should remain utility administered programs. Load management programs should remain utility administered programs. The DSM program administrator is the entity that will have a central role in the administration, coordination and supervision of DSM programs. For load management programs the coordination of load management includes the crucial decision of when the enrolled load should be interrupted in order to maintain system stability. The utility is in the best position to make that decision based on projections of demand, the status of the generating units and other available resources, and the state of its transmission and distribution systems. Response to CA/HECO-IR-6.

Load management programs, including demand response programs, provide load reductions when called for and activated by the utility. The utility's system operations are monitored 24 hours a day. Therefore, the load must be available for interruption shortly after being notified of a possible load control event and/or must be dropped immediately when HECO determines that an emergency situation exists. The requirement that the loads be dropped when required by the utility necessitates the utility administering these programs. HECO FSOP at 30.

The need for the utility to be the load management program administrator does not necessarily mean that it has to market and enroll customers into the load management programs (as differentiated from administering). Load aggregators have been known to acquire load

reduction resources on behalf of utilities or Independent System Operators (“ISO”) in other jurisdictions. However, the decision of when to activate the resource has always been retained by the utility or ISO. Response to CA/HECO-IR-6.

c. Determination Of Who Should Administer DSM Programs

The determination of whether new DSM programs should be administered by the utility or third-party administrator should be made within the IRP process, which is likely to be the source for many of these programs, using the market structure criteria discussed above. If a new program is not developed within the IRP process the administrator should apply the criteria objectively and report the results in the program application to the Commission for approval. HECO FSOP at 30.

The Commission should continue utility administration of the DSM programs identified above. As discussed at the panel hearing, HECO relies exclusively on third-parties for installation of all of the energy efficiency measures encompassed by those programs. In nearly all programs, the customer chooses the installation contractor unless the customer specifically requests HECO’s assistance in the selection. (The exception is the RDLC Program, in which the scope of the water heater load control switch installation is limited and repetitive.) In addition, nearly half of the current positions directly related to the administration of the Companies’ DSM programs are contract employees from an outside firm. Third parties have been also involved in the design of proposed DSM programs and with ex-post measurement and evaluation efforts. HECO FSOP at 30-31.

HECO already uses a third-party, Honeywell International, Inc., to process DSM application forms and implement its RDLC program. In addition, Honeywell provides field verification on residential efficient water heating and prescriptive commercial DSM program

application forms for HECO's REWH, CIEE and CINC programs. It also inspects the solar water heating system installations, processes requests for RDLC program enrollment, and handles the shipment, storage, inventory and installation of load control switches. HECO FSOP at 31.

2. Non-Utility Administration of All Programs

The analysis of the transfer of all DSM programs to a third-party administrator should include the following considerations which are explained in greater detail in the sections below:

1. Accountability and the obligation to serve,
2. Program constancy, consistency, and continuity, and
3. Cost-effectiveness.

The Consumer Advocate also made succinct and forceful arguments against transferring all DSM programs to a third-party administrator in its FSOP. CA FSOP, Appendix E at 24-30.

a. Accountability And The Obligation To Serve

Energy efficiency DSM is an important component of HECO's portfolio of resources, that complements conventional supply-side resources, renewable resources, distributed generation, and load management, for meeting HECO's obligation to serve. The crucial role that DSM has in ameliorating the existing reserve capacity shortfall situation has been identified in HECO's IRP-3 report, its Adequacy of Supply reports, and other filings with the Commission. HECO's IRP plan relies on the load reductions from DSM programs to meet the long-term projections of demand. HECO questioned whether a non-utility program administrator would have the same imperative, or the same accountability or responsibility to achieve the load reductions as the utility. If a third party administrator were to administer and implement DSM

programs then the utilities would need to rely on the DSM impact projections from the third party administrator for IRP planning. Since a crucial resource is no longer under the utilities' control, should the utilities' obligation to serve be excused? If the utility is still obligated to serve all customers in its franchise area, then the utility would need to implement additional contingency planning and mitigation measures in the event the third party administrator does not achieve its projected amount of load reduction. HECO FSOP at 31-32; Tr. (8/30) at 563-64 (Hee).

The experience of the California DSM programs is pertinent to this discussion. In the early 1990s the California PUC ("CPUC") was prepared to assign DSM to an independent, non-profit organization. However, before it could do so, the 2000/2001 California energy crisis hit, and the CPUC administered the DSM programs through the utilities during the crisis. In 2005, as a result of the lessons learned during the crisis, the CPUC returned the DSM programs to the utilities. HECO FSOP at 32. The CPUC's decision provided the following reasons for reassigning the programs to the utilities⁷⁸:

1. The utilities must be responsible and accountable to meet their obligation to serve.
2. Energy efficiency is a cost-effective resource that can be used to meet electricity demand.
3. In its resource planning, the utilities should not be required to adopt the DSM plans of others.
4. The CPUC must have authority to hold the administrator of the DSM programs accountable.

⁷⁸ Decision 05-01-055, January 27, 2005, Rulemaking 01-08-028, Order Instituting Rulemaking to examine the Commission's Future Energy Efficiency Policies, Administration and Programs.

5. There would be significant start-up costs and transition time lags associated with a change in program administration.
6. There were concerns about the ability of a third party to carry out the necessary fiduciary responsibilities.

If a third party were to administer the DSM programs, that third party should be subject to oversight by the Commission similar to the oversight requirement to which HECO is held.

With respect to its DSM programs, HECO is required to:

1. File two annual reports (the Annual DSM Program Accomplishments and Surcharge report in the March timeframe, and the Annual DSM Program Modifications and Evaluation Report in the November timeframe),
2. Request Commission approval of new DSM programs or modifications of existing programs,
3. Request Commission approval of budget modifications,
4. Independently verify and confirm energy and demand savings, and
5. Explain/support these requests in response to inquiries from regulators. HECO FSOP at 33.

The Commission should allocate the time and resources to develop similar procedures for the third party, while not interrupting the timely delivery of the DSM energy and demand savings. HECO FSOP at 34.

b. Program Constancy, Consistency, And Continuity

DSM programs are most effective when the market sees the objectives for energy efficiency as clear, consistent, and continuous.

HECO's DSM program objectives include:

1. Deliver energy savings and peak demand reductions,
2. Contribute to the attainment of the Renewable Portfolio Standard,
3. Provide all classes of customers the opportunity to participate, and
4. Do so cost effectively. HECO FSOP at 34.

These objectives have been clear, consistent, and continuous since the DSM programs were instituted in 1996. Customers, distributors, vendors, and building design professionals that participate in these programs are aware of this. To change the programs at this time, when they have been working very effectively, may create substantial uncertainty and jeopardize the program infrastructure that has been developed over the past 10 years. This could result in lost opportunities to install energy efficient measures and in resources being expended in an unproductive manner. HECO FSOP at 34.

Use of a third party to implement DSM programs will require a period of transition between utility and third-party DSM program administrator. Duplicate costs during the transition are unavoidable. In the transition there would have to be two parallel efforts for at least part of the time to get the new programs established: two sets of offices, staff, programs and program materials. And once the transition is complete there could still be delays due to the third party working out the "bugs" of its program provisioning (i.e., learning curve inefficiencies, vendor responsibility scoping, request-for-proposal processing, and contract negotiations). All of this will increase cost and, more seriously, delay the acquisition of demand-side resources, which HECO is depending on to meet a substantial portion of its future capacity needs. HECO's proposal of a hybrid approach allows the third party to focus on new programs, and reduces duplicative resources needed during transition. HECO FSOP at 34-35.

Mr. Violette testified that he is aware of situations when DSM implementation has gone

from utility implemented to third-party implementation that has resulted in “substantial delay” in achieving the DSM goals. Mr. Violette discussed New Jersey as an example of a situation where this delay has occurred. The performance of the DSM programs declined while the transition from utility implemented to third-party implemented DSM programs took place. A factor that contributed to the decline in the performance of the DSM programs was the departure of utility employees who implemented and administered the DSM programs. Tr. (8/30) at 572-76 (Violette).

HECO has experienced this type of situation. About one month following the issuance of Interim Order No. 22420 that ordered, among other things, that HECO could no longer accrue the recovery of lost margins and shareholder incentives, HECO’s DSM Director left the company. One of the reasons mentioned by the former DSM Director was Interim Order No. 22420. Tr. (8/30) at 578 (Hee).

c. **Cost Effectiveness**

HECO has demonstrated that it has been successful in delivering cost effective energy efficiency programs under the existing market structure. In 2004, HECO was able to deliver energy efficiency for less than 24 cents per kwh saved, which was lower than the costs incurred by Efficiency Vermont, the third-party administrator in the state of Vermont generally recognized as the model for non-utility program administration. HECO FSOP at 35.

3. **Competitive Bid for a Single Statewide Administrator**

The following are HECO’s concerns about a competitive bidding process to select a single statewide administrator:

1. Customer equity as well as least cost should be considered,
2. Creating a dysfunctional market should be avoided,

3. Care must be taken to ensure the most cost effective provider is chosen, and
4. Delays in the implementation of programs and the capture of load reductions must be avoided given HECO's current reserve capacity shortfall.

a. **Customer Equity As Well as Least Cost Should Be Considered**

As discussed earlier, least cost is not the only objective for DSM programs. Other objectives include load reduction, customer choice, and customer equity. Under competitive bidding, customer choice and customer equity are likely to receive less attention since both objectives require the offering of programs that may not result in least cost. Even if the RFP were written to provide for these objectives, there can be unintended consequences. For example, even if the RFP required the execution of a residential solar water-heating program, the competitive bidding aspect of the process could incent the system installers to reduce costs by under sizing the systems, which would not provide comparable levels of energy savings. HECO FSOP at 36.

b. **Creating A Dysfunctional Market Should Be Avoided**

Competitive bidding can result in a market with one dominant provider because a large provider of services can take advantage of economies of scale to lower cost in the short run. For example, a large solar water heating system installer could conceivably under-price other competitors by bidding for all of the installations under the REWH program, leaving many of the current contractors with the left over pieces. This kind of dysfunctional market does not serve customers because of many of the existing contractors will be left struggling to survive. Under HECO's administration, the REWH program allows the customer to choose from a number of installers that are competing with one another to best meet the customers' needs. HECO FSOP at 36.

c. **Care Must Be Taken to Ensure The Most Cost Effective Provider Is Chosen**

Unless the vendors bidding for service have a history of performance in the local market, the price of their bid package is speculative. The risk inherent in a competitive bidding environment is whether or not the bid price is an accurate portrayal of actual cost, or whether the price has been deliberately set to come in under a known price based on actual and known utility program costs. Performance based incentives/penalties may be incorporated into the contracts to account for that risk. Nevertheless, it is less risky in the first place if the provider of the service has a known and transparent cost history. HECO FSOP at 37.

d. **Delay Program Implementation**

The competitive bid process is lengthy, beginning with the development of the RFP document, and through bid evaluation, award, and contract negotiation. In the meantime, market uncertainty will exist that threatens the constancy, consistency, and continuity of the DSM programs. This uncertainty can only disrupt DSM program delivery, make participation in the programs by customers more uncertain, and delay the customers' acquisition of energy savings and the utility's acquisition of load reductions. HECO FSOP at 37.

HECO's current and historical performance, along with the comparison to Efficiency Vermont, demonstrate that HECO can be the most effective provider of DSM services without the necessity to participate in a costly and time consuming competitive bid process as proposed by HREA. In administering the competitive bid process, the Commission would have to develop for each program (1) a short-list of eligible third-party providers, (2) program design, (3) RFPs, and respond to questions about the RFPs, (4) a methodology for evaluating the proposals, (5) select the winning bid, and (6) negotiate the contracts. These steps take time and will require considerable resources on the part of the Commission. Response to HREA/HECO-IR-6.

As discussed earlier, HECO developed a matrix that evaluated the DSM programs and customer segments that are included in its DSM program proposal in this docket against the above criteria. HECO concluded that a hybrid market structure is appropriate and the evaluation identified:

1. Some programs and customer segments as being more effective under third-party administration,
2. Others to be clearly more effective under utility administration,
3. Some programs or customer segments that would be, on balance, more effective under utility administration, and
4. One program (the Interim Energy Solutions for the Home Program) that should be administered by the utility in the near term, but could transition to third-party administration at a later time. HECO FSOP at 37-38.

e. Other Considerations

Mr. Violette testified that when utilities have issued requests for bids for third-party administration of DSM programs, there has not been a large number of entities that have responded to those requests for proposals. Mr. Violette testified that recent experience has shown that choices for a third-party administrator have been constrained due to the small number of responses the entities have received. Tr. (8/30) at 592-93 (Violette).

One of the reasons for the lack of a large number of choices for a third-party administrator is that most of the entities want to be a contractor to a utility as opposed to being a regulated administrator of DSM programs. These entities view the profit as being in the direct delivery of the DSM programs, and not in the commission-regulated administration of the DSM programs. See Tr. (8/30) at 594-95 (Violette).

In addition, when there have been responses for the administration of DSM programs, the bidders have generally bid on the easier-to-reach sectors (i.e., the “low-hanging fruit”). The bidders did not generally bid on broad wide-ranging DSM programs. See Tr. (8/30) at 660 (Oliver).

Further, in general, the experience with bidding for DSM programs has been that the utility could provide the DSM programs at a lower cost than the bidders. Mr. Oliver referred to a study conducted by Lawrence Berkeley Laboratory in the 1990s that concluded that the utility’s own DSM lighting programs were lower cost than the bids that came in for most of the programs. See Tr. (8/30) at 677-78 (Oliver).

V. DSM COST RECOVERY FOR UTILITY-INCURRED COSTS

A. SUMMARY

The third Statewide Energy Policy Issue is: For utility-incurred costs, what cost recovery mechanism(s) is appropriate (e.g., base rates, fuel clause, IRP Clause)?

The seventh issue, which is specific to HECO’s Proposed DSM Programs, is: “If utility-incurred costs for the Proposed DSM Programs are to be included in base rates, what cost level is appropriate, and what the transition mechanism for cost recovery will be until the respective utility’s next general rate case?”

The appropriate cost level for the energy efficiency DSM programs proposed by HECO is addressed in Part III of this Opening Brief. This part of the Opening Brief addresses the mechanisms that should be used to recover those costs, both after and before the next rate case.

At the panel hearings, HECO stated that, if released from the constraint imposed by the DSM Stipulations, HECO is willing, and even prefers, to recover program costs (and utility compensation) through a surcharge, as long as HECO is granted sufficient flexibility with respect

to its annual DSM program budgets. HECO also stated that all program costs should be included in the surcharge, if that cost recovery mechanism is used.

B. EXISTING MECHANISM

HECO's DSM programs were developed under the Commission's IRP Framework. The Commission, in its Framework for Integrated Resource Planning, adopted in 1992, recognized the need for the recovery of DSM program costs: "The utility is entitled to recover all appropriate and reasonable integrated resource planning and implementation costs." Paragraph III.F.1 of the IRP Framework provides that the utility is entitled to recover its integrated resource planning and implementation costs that are reasonably incurred, and identifies four recovery mechanisms. IRP Framework ¶III.F.1.

Three issues were addressed in the development of the DSM cost recovery and incentives structure for the initial DSM Programs approved in 1996: (1) recovery of incremental DSM program costs; (2) lost margins; and (3) positive incentives that go beyond just making the utility whole from a cost and expenditure basis. HECO T-12 at 22. The merits of these DSM cost recovery and incentive mechanisms were developed in a working group comprised of a large number of stakeholders in Hawaii with most of the elements of the DSM mechanisms receiving essentially unanimous support by the members of the working group. The document prepared by the working group shows that a thorough review of the options was undertaken and documented in Appendix I to the Summary Report of HECO's 1993 IRP, Docket No. 7257, filed July 1, 1993.

As a result of this process, DSM program costs currently are being recovered partly through base rates and partly through the DSM component of the IRP Clause. With respect to incremental DSM program costs, program costs are expensed and recovered annually through

the IRP Clause, in the Residential, and Commercial & Industrial DSM Adjustments.

While there are pros and cons to every method, the recovery of program costs through a surcharge is often selected by utilities. Capitalization or accrual of DSM costs to be collected at some time in the future is viewed as a regulatory asset, has a risk of disallowance in the future due to changes in policy, and is viewed negatively by the financial community. Appendix I indicated that all members of the working group concurred with expensing and recovering program costs annually. HECO T-12 at -25.

C. HECO'S RATE CASE POSITION

HECO's position coming into this proceeding was that, in the next rate case (presuming the Energy Efficiency Docket decision and order is received before the next rate case), utility-incurred costs and utility incentives for its DSM Programs should be recovered through base rates, with a DSM Reconciliation Clause, as proposed in HECO's 2005 test year rate case testimony (HECO T-10). HECO proposed to recover DSM program costs entirely through base rates because:

- (1) It is HECO's understanding that the intent of the DSM stipulations was to require discontinuation of the use of a surcharge mechanism, such as the IRP clause, to recover DSM program costs, lost margins and shareholder incentives. To be consistent with that understanding, and to foster greater flexibility with respect to its DSM program budgets, HECO proposed to recover DSM program costs (as well as its proposed Utility Incentive) in base rates in its 2005 test year rate case. Tr. (8/31) at 778 (Hee).
- (2) Placing the DSM program costs into base rates provides the Company with the flexibility to adjust DSM program budgets to take advantage of market opportunities. Thus, HECO could increase or decrease incentives to respond to changes in participation levels, add new measures, and establish corresponding incentive levels to address market opportunities. The budget increase would not require regulatory approval from the Consumer Advocate or Commission, which would facilitate the rapid installation of the DSM measures. HECO would inform the Commission of its intent to proceed with these modifications to the programs in its annual M&E report, or by letter if within the program year.

- (3) Placing the DSM program costs into base rates also provides the Company the ability to focus efforts into the most effective programs. For example, if the CICR Program appears to be more successful than originally expected, program resources can be directed into that program to take advantage of savings opportunities. At times, the refocus may require the budget for one particular program to be exceeded. With DSM program costs embedded in base rates, the refocus can proceed immediately.
- (4) HECO is committed to pursuing DSM programs to the extent practicable to maintain and improve reliable electrical service; therefore, embedding DSM program costs simply reflects the fact that DSM has become part of the Company's normal business activities (provided it receives the appropriate financial returns commensurate of that effort).
- (5) Embedding DSM program costs into base rates reduces the amount of revenue recovered through a surcharge mechanism and reduces the effort required by the Company, Consumer Advocate, and Commission to monitor and review the program cost filings.

HELCO FSOP at 38-39; Tr. (8/31) at 778 (Hee).

If DSM program costs were included in base rates, the Commission would continue to receive assurance that the utility is pursuing the DSM programs to the full extent of the resources provided:

- (1) The Company will continue to file its Annual A&S Report during the 1st quarter of each year, which will describe program results, program accomplishments, and the cost effectiveness of the programs for the prior year.
- (2) The Company proposes to implement a DSM Reconciliation Clause that will:
(a) Reconcile the difference between DSM customer incentives actually paid and the customer incentives included in base rates; (b) Recover program costs for approved programs whose costs are not included in base rates; and (c) Encourage the Company to attain the DSM measure impacts associated with the DSM program cost budgets.
- (3) The program costs in base rates can be increased or decreased during the next rate proceeding based on how well the Company has been able to attain its DSM expenditure and savings goals. HECO T-10 at 50-51.

D. POSITIONS IN THE EE DSM DOCKET

In the informal submittal of preliminary statements of position in the March 2006

timeframe, in subsequent settlement discussion meetings with the parties/participants, and at the panel hearings, many of the parties/participants preferred recovery of program costs through a DSM surcharge, similar to the mechanism currently in effect, rather than recovery through base rates. See Tr. (8/31) at 795-96 (HREA); 796, 800 (RMI); 799 (KIUC); see also RMI FSOP at 17-20 for advantages. In its FSOP, HECO stated that it was willing to explore the DSM surcharge option with the parties/participants further during the course of this proceeding. HECO FSOP at 39-40.

The Consumer Advocate changed course from the DSM Stipulations, and recommended continued partial recovery of DSM expenses through a surcharge. Tr. (8/31) at 795 (Hahn). The Consumer Advocate proposed to continue the current DSM cost recovery mechanism, under which incremental DSM program costs are recovered through a surcharge, but the labor costs for HECO employees who are dedicated to the DSM programs are included in base rates. Tr. (8/31) at 782-83, 784-86 (Hahn). The DOD expressed a preference for initially including all costs in base rates, and tracking “external” costs (such as incentives paid to customers) for later reconciliation. Tr. (8/31) at 788-89 (Brubaker).

At the panel hearings, HECO stated that, if released from the constraint imposed by the DSM stipulations, HECO is willing, and even prefers, to recover program costs (and utility compensation) through a surcharge, as long as HECO is granted sufficient flexibility with respect to its annual DSM program budgets. Tr. (8/31) at 778-79, 782 (Hee). To a certain extent, this would facilitate (1) reconciliation of revenues received to recover estimated costs that are initially included in the surcharge, and actual costs, and (2) tracking of costs expended on the programs. See Tr. (8/31) at 779-82 (Hee).

HECO also stated that all program costs should be included in the surcharge, if that cost

recovery mechanism is used, to account for changes in the number of in-house employees dedicated to the programs. Tr. (8/31) at 783-84, 756 (Hee).⁷⁹

The Consumer Advocate (and others) favored continuing to reflect the surcharge amount separately on customer bills. See Tr. (8/31) at 795 (Hahn) (since the surcharge on bills provides a “signal” to customers to participate).

VI. UTILITY COMPENSATION

A. SUMMARY

The fifth statewide energy policy issue is: “Whether DSM incentive mechanisms are appropriate to encourage the implementation of DSM programs, and, if so, what is the appropriate mechanism(s) for such DSM incentives?”

The eighth issue, which is specific to HECO’s Proposed DSM Programs, is: “Whether HECO’s proposed DSM utility incentive is reasonable, and should be approved, approved with modifications, or rejected?”

These issues necessarily involve two sub-issues: (1) Should electric utilities receive compensation (over and above recovery of prudently incurred program costs) for DSM programs; and, if so (2) what DSM utility incentive mechanism should be implemented?

Utilities can and should be compensated for successfully delivering energy efficiency DSM programs to their customers. There are two primary reasons why regulatory commissions have recognized that compensating utilities for successfully implementing energy efficiency DSM programs is beneficial and in the public interest:

- (1) Compensation mechanisms put energy efficiency DSM options on a more level playing field with supply-side options; and

⁷⁹ The costs for Account Managers, who facilitate their customer’s adoption of DSM measures, would remain in base rates. Tr. (8/31/) at 786, 787 (Hee).

(2) Incentive regulation is more effective and requires use of less regulatory “resources” than “command-and-control” regulation.

In its 2005 test year rate case, HECO proposed recovery of a DSM Utility Incentive through base rates. The basis for proposing a base rate mechanism was HECO’s stipulations with the Consumer Advocate, approved by the Commission, in which HECO agreed to not seek the recovery of lost margins and shareholders incentives through a surcharge mechanism in the next rate case and thereafter.

The mechanism proposed in the rate case consisted of two components, including the recovery of the fixed cost shortfall due to sales lost as a result of implementing energy efficiency, and the recovery of a percentage of program costs, representing a return akin to that earned by other companies involved in the service industry. Furthermore, because this recovery was to be included in base rates, HECO proposed including a levelized amount of recovery, with a performance-based DSM reconciliation process between rate cases. The test year estimate of the cost of the DSM utility incentive was \$8.8 million. Of the total incentive, \$2.7 million was the return on program costs, and \$6.1 million was for the recovery of the fixed cost shortfall.

However, based on discussions with the other parties in the settlement meetings in this docket, HECO acknowledged that both the compensation mechanism and the level of compensation proposed in the rate case required re-evaluation. Thus, HECO has been open to suggestions from the other parties as to the mechanism and level of utility compensation for aggressively pursuing DSM programs, and made alternative proposals with respect to utility compensation for implementing DSM programs.

The first alternative is a shared savings mechanism as the basis for utility compensation for the administration and aggressive pursuit of energy efficiency. HECO’s first utility

compensation alternative does not include the recovery of fixed cost shortfalls between rate cases. The shortfalls are recovered through base rates in a general rate case when the impact of energy savings resulting from DSM programs is included in the test year sales estimate.

The Company's second alternative proposed the recovery of the shortfall in fixed costs combined with 15% of program costs (excluding the program costs for the load management programs). However, the shortfall in fixed costs recovery would be limited to one year's worth of shortfall and would not be cumulative.

Under either alternative, the compensation would not be paid to HECO unless the Company attained at least 80% of the energy efficiency KW load reduction goal. Once the 80% threshold attainment level is reached, HECO would then be eligible for compensation as determined by the mechanism. Further, under either alternative, the amount of total compensation would be capped at \$4.0 million before taxes.

At the panel hearings, HECO indicated that its current proposal is the first alternative, under which utility compensation would be based on 5% of the net benefits of the energy efficiency DSM programs, based on the modified utility cost test. The utility would receive no compensation if it achieved less than 80% of the annual megawatt goal, there would be a cap on the incentive of \$4 million before tax per year, and the compensation would be paid on a prospective basis, trued-up in the following year for actual achievements. Under this mechanism, HECO confirmed that it was not asking for lost margin recovery outside of a rate case.

The two determinations to be made by the Commission are the annual megawatt goals, and the thresholds to be achieved before any compensation is earned. The 5% of net benefits would be based on regulatory judgment, and takes into consideration the cost measure used in

the determination of the utility incentive. The range of percentages is 5 - 20 percent in other jurisdictions, so 5% is at the low end of the range. The 80% threshold was based on HECO's willingness to commit to a substantial amount of the energy efficiency goal before receiving compensation, as well as the recognition that there was a need to have a threshold.

B. WHY COMPENSATE UTILITIES FOR DOING DSM

There are two primary reasons why regulatory commissions have recognized that compensating utilities for successfully implementing energy efficiency DSM programs is beneficial and in the public interest:

- (1) Compensation mechanisms put EE DSM options on a more level playing field with supply-side options; and
- (2) Incentive regulation is more effective and requires use of less regulatory "resources" than "command-and-control" regulation.

1. More Level Playing Field

Expenditures for DSM programs are unique. Other utility expenditures are made in support of energy sales. In contrast, when a utility promotes effective energy efficiency DSM programs, energy sales are reduced from the levels that otherwise would have occurred. The reduced levels of energy use result in reduced costs to supply the energy, but also result in a larger reduction in revenue. This larger revenue loss includes a loss of the contribution to the fixed costs of the utility. Without an adjustment mechanism, the utility is financially worse off when it implements DSM programs. HECO FSOP at 56.

In recognition of this, the National Association of Regulatory Utility Commissioners ("NARUC") adopted a resolution in 1989 urging state commissions to adopt appropriate mechanisms to compensate utilities for earnings lost through the successful implementation of

DSM programs:

RESOLVED, That the Executive Committee of the National Association of Regulatory Utility Commissioners (NARUC) assembled in its Summer Committee Meeting in San Francisco, urges its member state commissions to:

- (1) Consider the loss of earnings potential connected with the use of demand-side resources; and,
- (2) Adopt appropriate ratemaking mechanisms to encourage utilities to help their customers improve end-use efficiency cost effectively; and
- (3) Otherwise ensure that the successful implementation of a utility's least cost plan is its most profitable course of action.⁸⁰

Compensating utilities for implementing DSM programs provides a viable mechanism that can be used to align the interests of utility shareholders and society. This allows regulators to focus their attention on the strategic oversight of DSM programs, rather than on attempting to micromanage DSM programs. Moreover, utility commissions that have evaluated the use of compensation mechanisms have concluded that they are significant motivators with respect to the implementation of cost-effective DSM programs, and the quality of such programs. This has been demonstrated by the successful implementation of DSM programs in Hawaii. HECO FSOP at 57.

2. Incentive Regulation

The "compensation" approach to utility DSM programs is superior to the "command and control" approach. In the "command and control" approach, a regulatory commission specifies exactly what the utility should do. The commission then monitors closely subsequent actions for compliance with the commission directive. If the utility does not follow adequately the commission's order, the commission, in subsequent proceedings, can penalize the utility.

The "command and control" approach, by itself, has proven to be less effective than an

⁸⁰ Resolution sponsored by the NARUC Committee on Energy Conservation, July 1989. See FSOP at 56-57.

incentive approach. For example, there has been emphasis in various jurisdictions on removing the financial disincentives to DSM, and providing compensation to utilities that run successful DSM programs. Moreover, a number of the jurisdictions that have strongly supported DSM have explicitly recognized the superiority of the “compensation” approach to the “command and control” approach.⁸¹

The California Public Utilities Commission (“CPUC”) examined this question at some length in the extensive proceedings that it conducted on the subject of shareholder incentives in the early 1990’s.

As part of a proceeding initiated in 1991 to establish rules and procedures for utility DSM, the CPUC directed that a report be submitted on the effectiveness of the shareholder incentive mechanisms it had approved in 1990. In the 1993 report prepared by the Wisconsin Energy Conservation Corporation (“WECC”), WECC recommended that DSM shareholder incentives become a permanent feature of the regulatory framework:

[I]f a sustained, effective DSM effort by a utility is desired to attain some or all of the societal benefits produced by increased DSM, then shareholder incentives are necessary and appropriate to increase the private value of DSM to a utility by bringing that value more in line with its societal value. Where successful DSM efforts will depend on the judgment and enthusiasm of the provider and the encouragement of innovation, shareholder incentives are a preferred regulatory scheme compared to the use of regulatory mandates by themselves.

Re Rules and Procedures Governing Utility Demand-Side Management, 51 C.P.U.C.2d 371, 1993 Cal. PUC LEXIS 675 (1993) at *16-*17.

WECC also identified explicit benefits of the incentive approach: “Compared to the pre-incentive period, WECC observes significant improvements in the recruitment of high

⁸¹ For example, the Massachusetts Department of Public Utilities (“DPU”) took the position that utilities under its jurisdictions were mandated to aggressively pursue DSM, but allowed the recovery of lost margins and shareholder incentives as well. See, e.g., Re Western Massachusetts Electric Co., 114 P.U.R.4th 239, 273, 279 285 (Mass. DPU 1990).

quality, experienced and motivated personnel to work on DSM. WECC's analysis also indicates that incentives have led to the perception of DSM as a profit center within the utilities, as opposed to "a necessary evil that must be done to appease regulators." 1993 Cal. PUC LEXIS 675 at *37.

DSM program advocates, and public utility commissions in other jurisdictions, have recognized that there are limits to the efficacy of the "command and control" approach. For example, the Vermont Public Service Board recognized the difficulty in ordering a utility to take actions inconsistent with the welfare of its shareholders:

Any effort to implement least-cost utility planning must recognize that implementation of demand-side measures requires a workable partnership between the utilities and their customers, supported by the regulatory framework within which they operate. To maximize their effectiveness, demand-side programs must be carefully crafted, creatively marketed, and intelligently monitored. These characteristics cannot be achieved by regulatory fiat alone, and are not likely to be achieved at all if utilities are financially penalized for succeeding in lowering their sales.

Re Least-Cost Investments, Energy Efficiency, Conservation and Management of Demand for Energy, 111 P.U.R.4th 427, 435 (Vt. PSB 1990).

The Colorado PUC also pointed out problems with the "command and control" approach:

One solution to this problem [financial incentives that inhibit utilities from pursuing DSM] would be increased oversight with greater reliance on command and control regulation. Given the limited resources available to monitor utility behavior in Colorado, as well as our preference to adopt a solution that positively reinforces the desired utility behavior without the imposition of constant regulatory oversight, this commission prefers to address the problem through regulatory reform.

Re Public Service Company of Colorado, 139 P.U.R.4th 397, 403 (Col. PUC 1993).

Dr. Violette agreed with NARUC, the ACEEE and the other organizations that support the usefulness of positive incentives. A recent report by the American Council for an Energy Efficient Environment (ACEEE), a respected leader in the area of energy efficiency program.

design and operation, stated that "we do support the use of some incentive mechanism beyond simple cost recovery as a way to help encourage maximum cost-effectiveness on the part of the program administrator."⁸² Again, the goal is to align financial incentives with appropriate policy objectives. This is done by making investments in DSM at least as attractive as investments in supply-side options. Usually, this requires some recognition of lost revenues and shareholder incentives to gain management attention and focus. HECO T-12 at 4.

Utilities that have not received some type of financial treatment of their expenditures on DSM programs have simply not pursued these programs aggressively. HECO T-12 at 26-27, citing the forward to the NARUC Report "Profits and Progress Through Least-Cost Planning".

Time has shown that both DSM and supply-side options pose risks, and it is difficult to argue that one set of risks is greater than another. However, there are other reasons (besides the potential for increased risk due to implementation of DSM programs) for supporting a shareholder incentive, including the fact that there will likely be lost profits from deferred plant investment. This delays returns on these investments and imposes a financial penalty on the utility that increases as HECO delivers DSM more successfully. In addition, it has been shown that incentives above the actions required to make the utility whole financially do draw management's attention. HECO T-12 at 48.

As Dr. Violette pointed out, "[t]here is still a lot of inertia to be overcome to implement aggressive DSM programs successfully. Each program is like developing a new product and taking it to market. It has to be priced, placed and positioned within the home and building market competing with many other items that compete for the customer's attention, time and

⁸² Dr. Violette stated that this statement came from the ACEEE report entitled "Responding to the Natural Gas Crisis: America's Best Natural Gas Energy Efficiency Programs," M. Kushler *et al.*, Report Number U035, December 2003, p. 9. Dr. Violette's phone conversation with Mr. Kushler indicated that his statement in this report applied to electric energy efficiency programs as well.

investment dollars. It is difficult to run successful programs. Talented people are needed, and a commitment is needed by the utility. The utility has proposed almost a tripling of its DSM dollars. Financial incentives should be aligned to help ensure the success of these programs by taking away all the disincentives, and aligning positive incentives up with successful program delivery. The shared savings mechanism that has been used by HECO accomplishes this objective.” HECO T-12 at 48-49.

Implementing a DSM program is like introducing any new product or service into a market. See HECO T-12 at 50. Just as all new product introductions are not successful, not all DSM programs reach their anticipated targets. Implementation can be more difficult and costly than expected. Risk that utilities face when they implement DSM programs include (1) limitations on the availability of end-use market baseline data, (2) market risks (participation assumptions), (3) infrastructure risks (i.e., vendor capacity to meet the demand created by the DSM programs), and (4) performance risks (i.e., ability of equipment to improve energy efficiency). The expected savings will vary depending on the availability of market data and the characteristics of those customers that choose to participate in the program (and these participants may differ from those assumed to participate when planning the program). Attainment of participation rates might be more difficult than anticipated, requiring a change in mode of marketing and/or the marketing message. See response to CA-IR-330 at 1.

In general, implementing a successful DSM program is challenging. A lot of hard work goes into program planning and delivery, and there are unplanned circumstances that can prevent a program from achieving its full objectives. Some observers have the opinion that all DSM programs are fool proof and that there are no difficulties to be overcome in implementation. This is simply incorrect. A DSM program is a new service being offered into the market and, as

with any new service, market vagaries can influence its success. As a result, within a portfolio of DSM programs, some might exceed expectations, some might just meet expectations and some will not meet expectations. The utility may face regulatory risks for those programs that do not meet expectations, even though best efforts were undertaken to make the program successful. See response to CA-IR-330 at 1-2.

3. IRP Framework Incentive Mechanisms

The Commission, in its Framework for Integrated Resource Planning, adopted in 1992,⁸³ recognized the need for the recovery of DSM program costs, lost margins, and shareholder incentives and accordingly stated:

The utility is entitled to recover all appropriate and reasonable integrated resource planning and implementation costs. In addition, existing disincentives should be removed and, as appropriate, incentives should be established to encourage and reward aggressive utility pursuit of demand-side management programs. Incentive mechanism should be structured so that investments in suitable and effective demand-side management programs are at least as attractive to the utility as investments in supply-side option.

IRP Framework II.B.7.

DSM program cost recovery, lost margins and shareholder incentives are further addressed in Part III of the IRP Framework. Paragraph III.F.1 provides that the utility is entitled to recover its integrated resource planning and implementation costs that are reasonably incurred, and identifies four recovery mechanisms. IRP Framework ¶III.F.1.

IRP Framework ¶III.F.2 provides that, under appropriate circumstances, the utility may recover the net loss in revenues sustained by the utility as a result of successful implementation of full-scale DSM sponsored or instituted by the utility. The IRP Framework further provides

⁸³ The IRP Framework (revised May 22, 1992) was adopted by the Commission by Decision and Order No. 11630 (May 22, 1992) ("D&O 11680") in Docket No. 6617, amending and reissuing the IRP Framework adopted in Decision and Order No. 11523 (March 12, 1992).

that the net revenue loss is the revenue lost less the variable fuel and operating expenses saved by the utility as a result of not having to generate the unsold energy. IRP Framework ¶¶III.F.2, 2.a. The existing mechanism provides explicitly for the calculation and recovery of such lost margins.

IRP Framework ¶III.F.3 provides that, under appropriate circumstances, the Commission may provide the utility with incentives to encourage participation in and promotion of full-scale DSM programs. The Framework provides that the incentives may take any form approved by the Commission, and identifies four of the possible forms of incentives. IRP Framework ¶¶III.F.3, 3.a.⁸⁴ The existing mechanism is a "shared savings" approach.

In first approving HECO's current mechanisms for the recovery of DSM program costs, lost margins and shareholder incentives, the Commission found that: "HECO's proposals are reasonable and appropriate to move HECO to undertake meaningful and cost-effective DSM programs." See Docket No. 7257, Decision and Order No. 13839 (March 31, 1995) at 37, 39.

4. Lost Margins

Lost margins are correctly referred to as "net lost revenues" in the IRP Framework, and equal the revenues lost as a result of sales reductions due to installing DSM measures, less the variable fuel and operating expenses saved by the utility as result of not having to generate the unsold energy. (The lost margin amount is the lost recovery of fixed costs.) Under appropriate circumstances, the IRP Framework allows the Commission to permit utilities to recover lost margins between rate cases. In a rate case, the impact of the existing energy efficiency programs on sales and revenues is reflected in the test year estimate of revenues (i.e., the test year sales are lower because of the ongoing impact of energy efficiency measures installed under our DSM

⁸⁴ The IRP Framework also provides that the Commission "may terminate any and all incentives whenever circumstances or conditions warrant such termination." IRP Framework III.F.3.c. See Docket No. 6617, Decision and Order No. 11630 (May 22, 1992) at 19.

programs). If rate cases were held every year, there would be no lost margins to recover between rate cases. See IRP Framework ; see also Tr. (8/31) at 817 (Hee).

Lost margins are important since each kWh conserved is in essence a multi-year transaction between the customer and the utility. When a successful program results in a large number of more energy efficiency measures being installed, the revenue impact on the utility can be quite large, and it persists into the future. HECO T-12 at 2.

This makes lost margins so important to the utility, and it also is what makes lost margins an element of DSM incentives that attracts the attention of regulators, particularly when the utility goes without a rate case for a number of years. Since lost margins accrue geometrically, i.e., each year's conservation savings is added to the sum of all prior years' savings, the number can grow to be quite large when a five year period is considered. While there is, in fact, some loss in contribution to fixed costs and earnings for each kWh saved for every year, the accumulation of these costs when there has not been a rate case for a long time (in HECO's case, it was over 10 years), becomes quite large and often exceeds what was expected when the mechanism was put in place. When rate cases are held every three to four years, the kWh forecasts accounts for the energy savings programs in its forecast and test year calculations, and the lost margin account is set to zero and the accumulation to unexpected amounts does not occur. When the DSM incentives mechanism was established, it was reasonable to assume that HECO would be continuing with rate cases on a generally regular basis. However, industry circumstances allowed HECO and many other utilities to not need a rate case for a decade or more. HECO T-12 at 24.

In Dr. Violette's opinion, if lost margin recovery is discontinued altogether between rate cases, HECO would be left with "distorted incentives." The only way to monitor this potential

distortion in incentives would be through regulatory oversight. See HECO T-12 at 37-43; Tr. (8/31) at 838 (Violette).

This was acknowledged in Final Report on Hawaii Energy Utility Regulation and Taxation, Hawaii Energy Policy Forum, July 2003, where the authors stated in discussing the DSM Stipulations that:

Recently the PUC has approved an agreement that will soon end the current implementation of the financial DSM cost recovery mechanisms for HECO, MECO and HELCO. Unless these financial mechanisms are replaced with some form of mandate or alternate incentives, the current utility DSM programs are in serious jeopardy. Although the PUC's recent orders on this matter have received little notice, they represent a major reversal of an important part of Hawaii's energy policies. The mechanisms being terminated quietly by the PUC were previously established by several years of collaborative efforts by Hawaii's energy sector stakeholders.

HECO T-12 at 27; see HECO T-12 at 42-43.

5. Recent Decisions/Reports

There have been a number of recent decisions indicating that state regulators and national associations are revisiting DSM incentives and re-applying the same principles that helped create the initial set of incentives for DSM at utilities that became leaders in the development of energy efficiency programs. (These were discussed in the testimony of Daniel M. Violette, Principal, Summit Blue Consulting, that was submitted as HECO T-12 in HECO's 2005 test year rate case, Docket No. 04-0113.) For instance, NARUC Board Resolutions in 2003 and 2004 indicate an increased interest in providing utilities with appropriate compensation to aggressively pursue investments in energy efficiency:⁸⁵

(1) At its July 2003 Summer Meetings, NARUC adopted a resolution calling for State and Federal Commissions to review and reconsider the level of support and incentives for existing gas and electric utility programs designed to promote and aggressively implement cost-effective conservation, energy efficiency, weatherization, and demand response in

⁸⁵ See Docket No. 04-0113, response to CA-IR-321 at 2-4.

both gas and electric markets.

(2) At its July 2004 Summer Meetings, NARUC adopted a Resolution on Gas and Electric Energy Efficiency that specifically referenced the report prepared by the National Petroleum Council on "Fueling Demands of a Growing Economy" (September 25, 2003), which identified key elements of the effort to maintain and continue improvements in the efficient use of electricity and natural gas where one of the elements was to "remove regulatory and rate structure incentives to inefficient use of natural gas and electricity."

(3) At the same July 2004 Meetings, the NARUC Resolution on Gas and Electric Energy Efficiency recognized the recently adopted joint statement between the Natural Resources Defense Counsel ("NRDC"), the American Council for an Energy-Efficient Economy ("ACEEE"), and the American Gas Association ("AGA"), where the NRDC, ACEEE and AGA urged public utility commissions to align the interests of consumers, utility shareholders, and society as a whole by encouraging conservation.

(4) Based on the above, it was resolved, among other things, that NARUC's Board of Directors "encourages State commissions and other policy makers to support the expansion of natural gas energy efficiency programs and electric energy efficiency programs, including those designed to promote consumer education, weatherization, and the use of high-efficiency appliances, where economic, and to address regulatory incentives to address inefficient use of gas and electricity"⁸⁶

The EPA Report filed in this proceeding pointed out that there are a variety of DSM incentive mechanisms used in different states and provided examples from five states and provinces that incent their utilities for pursuing DSM.⁸⁷ EPA Report at 31-34.

The July 2006 National Action Plan for Energy Efficiency ("NAP") that EPA facilitated along with the U.S. Department of Energy provided several other examples of incentive mechanisms. See NAP, Chapter 2. A copy of the NAP was attached as Exhibit A to HECO's Response to EPA Report.

The NAP was developed by a Leadership Group of 50 leading organizations representing

⁸⁶ Resolution Sponsored by the Committee on Electricity and the Committee on Energy Resources and the Environment (among others) at the NARUC Summer Meetings, Salt Lake City. Adopted by the NARUC Board of Directors (July 14, 2004).

⁸⁷ EPA's report entitled "EPA Comments in Docket No. 05-0069 for the State of Hawaii Public Utilities Commission" ("EPA Report") was filed July 26, 2006.

diverse stakeholder perspectives and “is a call to action to utilities, state utility regulators, consumer advocates, consumers, businesses, other state officials, and other stakeholders to create an aggressive, sustainable national commitment to energy efficiency.” NAP, Executive Summary at 6. The Leadership Group clearly saw utility incentives as a key to overcome barriers that have limited greater investment in programs to deliver energy efficiency. One of the five recommendations made by the Leadership Group is to “[m]odify policies to align utility incentives with the delivery of cost-effective energy efficiency and modify ratemaking practices to promote energy efficiency investments.” NAP, Executive Summary at 2.

6. History of Incentive Mechanisms

As discussed in detail in Docket No. 04-0113 in HECO T-12 (Dr. Violette)⁸⁸, the general trend in DSM incentives over approximately the past decade can be viewed as having three phases. Phase 1 followed momentum in the regulatory community for least-cost planning, which resulted in NARUC’s landmark resolution calling for a utility’s least cost plan to also be its most profitable plan, along with recognition of the disincentives to energy efficiency embedded in current ratemaking methods. Based on this rationale, a number of state commissions adopted DSM compensation mechanisms that addressed DSM cost recovery, lost margins and incentives. By 1993, approximately half of the state regulatory commissions (including Hawaii) had adopted DSM incentives in one form or another.

Phase 2 occurred in the mid- to late-1990s when a number of factors came together and resulted in DSM compensation being reduced or phased out altogether. Four factors that influenced the DSM compensation trend in this period included:

- (1) Restructuring, which made it unclear whether the regulated utility would still be responsible for DSM (in fact, in Pennsylvania, DSM programs were eliminated as

⁸⁸ See HECO T-12 at ; HECO FSOP at 63-65.

part of the move to retail choice);

(2) The fact that many utilities did not have a rate case for an unusually long period of time, resulting in lost margins accruing to levels much higher than anticipated when the DSM compensation was established (Washington, Minnesota, and Massachusetts);

(3) The increased competition in wholesale generation markets promoted by FERC's allowance of market pricing and wholesale access for wholesale generators, which established a rush to build merchant power plants and resulted in a glut of capacity in many regions of the U.S.; and

(4) Stable fuel prices (oil, natural gas and coal) during the 1990s, along with improved electric generation technologies, which served to keep electricity prices low.

As a result, events in the mid- to late-1990s resulted in a set of industry factors that led many regulatory commissions to reduce DSM compensation due to perceived high compensation levels resulting from the long time periods between rate cases, and a lessening of the need for cost-effective energy efficiency due to excess capacity and low electric prices. Not so coincidentally, the expenditures on energy efficiency also decreased substantially during this period.

Phase 3 is the current period. The industry has turned another corner with the demise of Enron Corporation and the collapse of a number of energy traders; financing for new power plants has all but disappeared, and many planned merchant plants have been canceled. Fuel prices are rising dramatically and many states are again concerned about the need for new capacity and a correspondingly high need for DSM. The 2003 and 2004 NARUC Board Resolutions indicate an increased interest in providing utilities with appropriate incentives to aggressively pursue investments in energy efficiency. Positions taken in support of incentives by the Alliance for an Energy Efficient Economy, the National Petroleum Council, the NRDC and the AGA, as well as state commission decisions, all indicate a new trend.

7. HECO Should Receive Compensation for Pursuing DSM

The financial treatment of DSM investment by the utility is very important, particularly when HECO is proposing a sizeable expansion of its DSM programs. HECO strongly supports the appropriateness of DSM utility compensation for the following reasons⁸⁹:

- (1) Any non-utility DSM program administrator, with the possible exception of government agencies, will require some level of compensation for providing services.
- (2) Any kWhs saved through an energy efficiency program reduce utility revenues.
- (3) The IRP Framework recognizes that incentives should be established to encourage and reward aggressive pursuit of demand-side management programs.
- (4) The elimination of lost margins and shareholder incentives simply substitutes one set of incentives for another set of incentives that drives HECO towards supply-side solutions.
- (5) Appropriate alignment of incentives with performance is simply good public policy.

In the event that the Commission establishes a third-party DSM administrator, that administrator would expect to be compensated for its services at some level beyond the simple recovery of its program and administrative costs. Even a non-profit entity would be looking to enhance its financial condition to improve its ability to serve its constituents. The compensation mechanism should be transparent regardless of whether the provider is the utility or a non-utility third-party. Therefore, HECO should also be compensated as a provider of a similar service when administering DSM programs.

Any kWhs saved through an energy efficiency program reduce revenues that would have

⁸⁹ HECO FSOP at 65-69.

otherwise been recovered by the utility not only for the year in which the program was implemented, but also for some years into the future. This results in substantial opportunity loss (in terms of earnings potential) for HECO going forward and fewer kWh sold on which to recover fixed costs. As a result, it is important that appropriate financial compensation be provided for energy efficiency DSM program implementation. HECO should not be penalized financially for implementing cost-effective DSM instead of supply-side alternatives, which are allowed returns on installed plant and facilities. HECO T-12 at 3; see Response to CA-IR-319, Docket No. 04-0113.

This concept has been recognized in Hawaii's IRP Framework, which provides that "existing disincentives should be removed and, as appropriate, incentives should be established to encourage and reward aggressive pursuit of demand-side management programs. Incentive mechanisms should be structured so that investments in suitable and effective demand-side management programs are at least as attractive to the utility to the investment in supply-side options."⁹⁰

This statement of policy led the IRP Working Group in 1993 to accept (1) recovery of incremental DSM program costs, (2) recovery of lost margins, and (3) positive incentives that go beyond just making the utility whole from a cost and expenditure standpoint to providing for some opportunity for an increase in earnings that make the least-cost plan with DSM a component of a profitable plan for the utility.

HECO has been using approved compensation mechanisms since DSM programs were initiated in 1996 and has found that they are reasonable incentives that motivate the utility to pursue aggressive energy efficiency DSM programs. In particular, the shareholder incentive,

⁹⁰ IRP Framework ¶II.B.7, p. 4.

which is a shared savings mechanism, is a reasonable performance based incentive – it rewards energy savings and load reduction performance and low program costs.

This treatment of DSM compensation has been accepted by the California PUC and other state regulatory bodies, as discussed in Dr. Violette’s rate case testimony (HECO T-12). The Energy Action Plan adopted on May 8, 2003 by the California PUC, the California Energy Commission, and the California Power Authority calls for “providing utilities with demand response and energy efficiency investment rewards comparable to the return on investment in new power and transmission projects”. This was followed by a decision by the California PUC calling for recovery of lost margins for utility investments in demand response resources.⁹¹

Moreover, while the recovery of lost margins makes the utility financially whole, it does not provide an incentive for the utility to aggressively pursue DSM. Dr. Violette’s rate case testimony discusses several alternative mechanisms for this incentive.

Finally, it is critically important to recognize that all rate-setting policies embody incentives of one type or another. The elimination of lost margins and shareholder incentives simply substitutes one set of incentives for another.⁹² An appropriate incentive is one that does not reward distortions of investment, makes the least cost plan the most profitable for the entity that is responsible for implementing that plan (in this case, the utility), and is clear and direct. Eliminating all incentives for DSM could be counter to the public good, and would effectively establish incentives that reward the utility to direct its efforts toward supply-side alternatives.

⁹¹ California Public Utilities Commission, Interim Opinion in Phase 1 Addressing Demand Response Goals and Adopting Tariffs and Programs for Large Customers, Decision 03-06-032, Rulemaking 02-06-001, June 6, 2002, p. 56.

⁹² HECO T-12, at 36-37.

8. Response to Counter Arguments

Renewable Energy Resource Use Is Mandated

Interim D&O 22420 suggested that it would be “inappropriate for HECO to receive incentives to utilize DSM programs in an environment that . . . requires renewable energy resource use, pursuant to the RPS, codified at Part V, Chapter 269, Hawaii Revised Statutes” However, the Renewable Portfolio Standards (“RPS”) law explicitly recognizes that utility incentives should be considered to encourage Hawaii’s electric utility companies to use cost-effective renewable energy resources.

The RPS law, as amended by Act 95 (2004) and Act 162 (2006), directs the Commission to develop and implement a utility rate-making structure, by December 31, 2007, which may include but is not limited to performance-based ratemaking (“PBR”), to provide incentives to encourage Hawaii’s electric utility companies to use cost-effective renewable energy resources found in Hawaii to meet the renewable portfolio standards, while allowing for deviation if the standards cannot be met in a cost-effective manner, or due to events or circumstances beyond the utility’s reasonable control.⁹³ The implicit assumption of this provision is that the form of regulation (i.e., the regulatory regime) can favorably impact the achievement of the renewable portfolio standards. In essence, the Commission is asked to look at incentive-based regulation, as an alternative to the traditional command and control form of regulation, in which the Commission directs the utility to do certain things, and imposes penalties if those things are not done.⁹⁴

⁹³ PBR was the only mechanism identified by name in the law for consideration by the Commission. Performance-based ratemaking generally identifies performance criteria and incentives for exceeding targets as well as penalties for falling short.

⁹⁴ In developing and implementing a ratemaking structure to provide incentives that encourage Hawaii’s electric utility companies to use cost-effective renewable energy resources to meet the renewable portfolio standards, the RPS law directs the Commission to determine the extent to which

HECO Has A Reserve Margin Shortfall

The Consumer Advocate (and Interim D&O 22420) suggest that it would be “inappropriate” for HECO to receive incentives to utilize DSM programs in an environment that involves a reserve capacity shortfall.

In CA-IR-320 in Docket No. 04-0113, Mr. Violette was asked to explain why, given HECO’s need to add new resources to meet strong load growth, HECO should receive positive incentives beyond direct cost recovery of the Commission-approved DSM programs to encourage implementation of cost-effective DSM programs. “In other words, why would the opportunity to implement cost-effective DSM programs to fulfill basic service obligations not be sufficient encouragement?” In response, he stated that -

it is a matter of good public and regulatory policy to provide positive incentives so that investments in suitable and effective demand-side management programs are at least as attractive to the utility as investments in supply-side options. Load growth, coupled with the time required to implement new supply-side resources, provide an incentive to a utility to pursue demand-side resources, at least in the short-run. But that does not mean that requiring the utility to accept uncompensated risks as its ‘reward’ for meeting its service obligation is good public or regulatory policy. That would be comparable to arguing that a utility should not be compensated for costs incurred in restoring its system after a natural catastrophe, because the utility needs to restore its system anyway in order to provide service. In the longer term, the ‘message’ conveyed to the utility would be that it should focus its future efforts on the supply-side of the equation.

He also noted that part of the rationale behind the provision of positive incentives for implementation of cost-effective DSM programs stems from the alternative, i.e., a command and control approach imposed by the Commission. Given that traditional rate-of-return regulation provides incentives that discourage utilities from pursuing cost-effective DSM, one solution to this problem can be increased oversight by the Commission and a greater reliance on command

any proposed utility ratemaking structure would impact electric utility company profit margins, and to ensure that the electric utilities’ opportunity to earn a fair rate of return is not diminished. In essence, the RPS law recognizes that the imposition of renewable portfolio standards, and the requirement that utilities take actions such as implementing energy efficiency measures to achieve those standards, create certain risks for the utility.

and control regulation. However, most regulatory commissions have limited resources to monitor utility behavior, and the adoption of incentives that re-enforce the desired utility behavior without the imposition of intense regulatory oversight (due to having to overcome the negative financial outcomes to the utility that can result from DSM) is another desirable outcome. Finally, successful DSM depends on the innovation and commitment of the utility and this is best accomplished through appropriate incentives rather than the use of regulatory mandates requiring commission oversight:

In summary . . . there is evidence that incentives make a difference in the level of commitment to investments in energy efficiency. Working out a set of financial mechanisms whereby the utilities least cost plan is also their most profitable plan makes good sense. Appropriate alignment of incentives is simply good public policy.

DSM Expenditures Are Just Like Other Expenses

The Consumer Advocate appears to believe that expenditures for energy efficiency DSM programs are just like other O&M expenses, and since no “incentive” is necessary for utility to incur O&M expenses, no “incentive” is appropriate for DSM programs.

Both the premise for the argument and the conclusion are wrong. Expenditures for energy efficiency DSM programs are not just like other O&M expenses, and incentives are appropriate for energy efficiency DSM programs, as NARUC has recognized, as other regulatory commissions have recognized, as the NAP has recognized, and as this Commission has recognized in the past.

A utility incurs O&M expenses in providing electricity to its customers, and it is through electricity sales that the utility recovers its fixed costs, including a return of and return on its investment. (Increased sales may lead to the need for further investment, but the utility will be entitled to an opportunity to earn a fair return on that additional investment as well.)

In contrast, a utility incurs energy efficiency DSM program expenses in order to reduce

the sales of its product. Reducing sales reduces the utility's profitability.⁹⁵ As Dr. Violette demonstrated, under rate of return regulation (i.e., using revenue requirements, comprised of capital, a return on capital, and variable costs), HECO will lose money (i.e., receive less net revenues after accounting for variable costs) on each kWh successfully delivered through its energy efficiency programs.⁹⁶ Regulatory lag is recognized as a powerful incentive that has served as one of the principal arguments for rate of return regulation. Discontinuing the collection of lost margins would impact the positive impacts of regulatory lag as an incentive for keeping costs down. Given that HECO is proposing to almost triple DSM expenditures, the revenue losses will likely force more frequent rate cases, causing additional expense for all concerned, as HECO will need to readjust the test year sales to compensate for kWh conserved. HECO T-12 at 3, 37-39.

Single-Issue Ratemaking

Some of the parties attempted to associate lost margin recovery with "single-issue ratemaking." The analogy is not applicable. Expenses in future years may be higher than or lower than those assumed in setting rates. In contrast, lost margins will always have a negative impact, so the impact is asymmetric. More importantly, the better the job the utility does

⁹⁵ That is not the case with load management DSM programs, which generally are designed to reduce the peak load that the utility must serve, without significantly affecting sales.

⁹⁶ Under current rate making policies the utility is allowed to earn a fair return on its capital investments in generation. In contrast, when a utility promotes effective energy efficiency DSM programs, (1) revenue is reduced by more than the reduction in variable costs due to lower sales, and (2) without utility compensation, the energy efficiency programs fail to earn a return at the same time they defer those capital investments in generation upon which the utility can earn a fair return.

Energy sales are reduced from the levels that otherwise would have occurred without DSM. The reduced levels of energy use result in reduced costs to supply the energy, but also result in a larger reduction in revenue to the utility. Embedded in that revenue is not only the fair return allowed by the Commission on the utility's investment in generation, but also some contribution to the utility's fixed costs to serve its customers. Consequently, if a utility implements effective energy efficiency programs without a utility incentive, not only is there a potential foregone opportunity to invest that money in an endeavor that would produce a fair return, but it also contributes to an erosion of the utility's revenue to offset its fixed costs and maintain its level of profitability. Response to HSEA/HECO-IR-8.

implementing energy efficiency DSM programs, the bigger the negative impact will be. Tr. (8/31) at 807, 810, 813 (Hee, Violette), citing EPA Report at 30.

Frequent rate cases are not the answer, because rate cases only look at the test year impact of DSM programs, when the impact increases each year after a rate case (if the DSM programs continue). Even the DOD suggested that the impact considered in a rate case test year might need to look at the impact in the year after the test year. Tr. (8/31) at 812 (Brubaker).

C. UTILITY DSM INCENTIVES

1. Factors to Consider in Developing Incentives

Under the IRP Framework, three issues should be addressed in the development of a DSM incentives structure: (1) recovery of incremental DSM program costs; (2) lost margins, since it is widely recognized that reductions in kWh sales can result in the erosion of the recovery of fixed costs (all kWh sold contribute to the recovery of fixed costs designed to serve current and forecasted load growth); and (3) positive incentives that go beyond just making the utility whole from a cost and expenditure basis to provide for some increase in earnings that make the least-cost plan with DSM as a component the most profitable plan for the utility. HECO T-12 at 22.

2. Original Utility DSM Incentives

Three DSM incentive mechanisms were included in HECO's existing programs. See Appendix I to the Summary Report of HECO's 1993 IRP, Docket No. 7257, filed July 1, 1993. (Two of the mechanisms, providing for the accrual of lost margins between rate cases and the accrual of shareholder incentives, were allowed to continue until May 2006 and then discontinued.)

The three mechanisms addressed each of the three issues discussed in the prior question and answer. The merits of these DSM incentives were developed in a working group comprised

of a large number of stakeholders in Hawaii with most of the elements of the DSM incentive mechanisms receiving essentially unanimous support by the members of the working group. The document prepared by the working group shows that a thorough review of the options was undertaken and documented in Appendix I. HECO T-12 at 2.

Incremental DSM Program Costs

With respect to incremental DSM program costs, program costs are expensed and recovered annually through the IRP Cost Recovery Provision, in the Residential, and Commercial & Industrial DSM Adjustments (referred to as the "IRP Clause"). Appendix I indicated that all members of the working group concurred with expensing and recovering program costs annually. HECO T-12 at 2.

Lost Margins

Lost margins were also calculated and recovered through the IRP Clause. Appendix I of HECO's 1993 IRP Summary Report indicates that members of the working group concurred with this treatment of lost margins.

Shareholder Incentives

A number of shareholder incentive mechanisms were evaluated. The working group agreed with a proposal where HECO would receive 10% of the net benefits calculated (on an after-tax basis) using the utility cost benefit/cost test, with the balance going to ratepayers.⁹⁷

The shared savings mechanism rewards the utility for achieving high levels of net system benefit. Net system benefits are equal to the net present value of the energy savings and load

⁹⁷ Appendix I to HECO's IRP filing (June 14, 1993) discussed the need for additional incentives above cost recovery and lost margin recovery that just make the utility financially whole. The Ad Hoc Group working on the Cost Recovery, Lost Margin and Shareholder Incentives Appendix I found concurrence between HECO, the Natural Resources Defense Council, and the Department of Business, Economic Development, and Tourism. The Consumer Advocate had not formulated an opinion by that time. HECO T-12 at 47-48.

reductions acquired, less program costs.

The system benefits of energy savings and load reductions are measured by the additional energy and capacity costs that would have been incurred by HECO in the absence of the acquired energy savings and load reductions. Program costs currently consist of customer incentives, direct labor, and outside services necessary to administer the programs, but do not include the cost of measurement and evaluation efforts, nor do they include the current shareholder incentives. HECO is compensated with 10% of the net system benefits - thus, this mechanism “shares the savings”, with the majority of the net system benefits apportioned to HECO’s customers. Therefore, the mechanism inherently aligns the interests of customers and shareholders.

This shared savings mechanism has proven to be a reasonable basis for utility compensation. The compensation level is tied to the system value of energy and capacity through the avoided cost analysis, and the mechanism is performance based. Greater energy savings and load reductions achieved through the DSM programs at lower cost increase the net system benefit and lead to higher compensation levels for the utility. Lower savings and reductions, and higher program costs lead to lower compensation levels. Although the mechanism requires a quantification of avoided cost, the concept is easy to grasp. It has been used successfully since the DSM programs were initiated in 1996, and as a result, the parties are familiar with its calculation. The shared savings scheme is one of the incentive mechanisms included in the Commission’s IRP Framework.

Mechanisms Worked

When considering future alternatives, it is useful to assess how current mechanisms have been working. In the opinion of Dr. Violette, these DSM incentives mechanisms worked.

HECO responded with a set of aggressive DSM programs that have attained substantive savings, on the order of 197,952,000 kWh, over the eight-year period from 1996 to 2003. HECO T-12 at -25.

With respect to the lost margin recovery mechanism, however, the period of time between rate cases allowed the lost margins number to accumulate to a level that was probably unexpected by most of the working group participants when it was adopted (i.e., the length of time between rate cases has simply allowed that number to accrue to a magnitude larger than it would have been if rate cases been held every three to four years). Given HECO's commitment to proposed DSM programs, incentives (whether they are the same as those currently in place, i.e., shareholder and lost margins mechanisms, or some other type of mechanism) become even more important. HECO T-12 at 25.

3. Rate Case Proposal

Dr. Violette was asked to develop alternatives to the current shareholder incentive mechanism. He considered several approaches and attempted to work within the constraints of the DSM Stipulations.⁹⁸ Based on his review of approaches, he recommended a two-part incentives mechanism, and an element that makes the incentives mechanism more performance-based. The two elements of the proposed incentives approach included (1) limiting the accumulation of lost margins to three years, thereby restricting lost margins from accumulating over periods of time longer than may have been originally envisioned; and (2) providing a return on program costs (i.e., the element of the current shareholder incentive that is not recovery of lost margins) equal to 15% of HECO's expenditures on DSM. The second element of the proposed incentives element includes a performance-based component where the amount of the

⁹⁸ The DSM Stipulations are discussed in an exhibit to this Opening Brief.

incentives would be determined by how successful HECO was in achieving energy savings.

HECO T-12 at 28-29.

As a result of this recommendation, the DSM utility incentive proposed in the rate case consisted of two components, including (1) a reasonable return on program costs, and (2) compensation for the shortfall in the contribution to fixed costs resulting from the reduction in electricity sales. The test year estimate of the cost of the DSM utility incentive was \$8.8 million. See HECO-1018. This figure was based on current rates and was subject to change based on the final outcome of rate design in the rate proceeding. Of the total incentive, \$2.7 million was the return on program costs, and \$6.1 million was for the recovery of the fixed cost shortfall. HECO T-10 at 52; response to CA-IR-306.

In developing the DSM Utility Incentive mechanisms proposed in the HECO rate case, HECO tried to be responsive to its understanding of the DSM Stipulations. Thus, HECO's rate case proposal for DSM utility incentives was significantly different from the existing lost margin and shareholder incentive methodology, and recovery of the utility incentive would not be made through a surcharge mechanism, but through base rates.

HECO also proposed to put DSM utility incentives in base rates because (1) the amount of DSM utility incentives flowing through a surcharge would be reduced, and (2) the regulatory lag would be eliminated.

There is an advantage to minimizing the surcharge amount, because a lower surcharge amount results in smaller adjustments to base rates, thereby maintaining customers bill amounts as close to the test year approved rates as possible. Moreover, recovering the DSM utility incentive in base rates eliminates regulatory lag. By embedding the DSM utility incentive into base rates, the incentive would be recovered in the same year that the incentive is earned. Under

the former mechanism, the shareholder incentive was recovered ex-post (i.e., in the year after the incentive was earned). HECO T-10 at 53.

Return on Program Costs

The return on program costs was derived by multiplying the total cost of the energy efficiency DSM programs by 15%. HECO-1019. Based on the testimony of Dr. Violette, 15% is a reasonable level of return for companies engaged in the services line of business. HECO T-10 at 54.

In arriving at his recommendation that the return on program costs be set at 15%, Dr. Violette developed several options for how this element of the incentive mechanism could be structured. In his opinion, the one that best reflects the current utility business environment was the “enterprise model” approach, embedded with the recovery of lost margins. The enterprise model approach would recognize that the utility is being asked to operate under a different business model if energy efficiency becomes one of its areas of emphasis. The traditional utility is a capital-intensive enterprise that builds power plants and transmission lines and invests in distribution plant. The positions taken by the Commission (through the IRP Framework) and by the State of Hawaii (through its Energy Policy to reduce reliance on imported energy sources) demonstrate that they want the utility to also deliver energy efficiency and load management programs. This changes the traditional capital-intensive utility model and moves the model under which HECO operates toward a service enterprise. The utility is now entering into a service business in addition to its traditional business of producing electricity. HECO T-12 at 30-31.

There are many examples of service businesses - business services firms, engineering services firms, accounting services firms, management and public relations services firms, and

others / but none of them works for a zero or even a negative return. Dr. Violette's experience with service industry enterprises -

suggests that rates of return in the range of 10%-20% of costs are common. This experience includes direct involvement over many years in the valuation of more than a dozen service companies for acquisition. Although it is difficult to gather profit or rate-of-return data on narrow industry categories, my view regarding the appropriate rate of return is supported by publicly available data showing that rates of return in common service industries average around 20% pre-tax. Specifically, the rates of return over the past year for four business services categories are shown in the table below:

SIC	Industry	Rate of Return (Profits divided by Costs)
7300	Business Services	21.6%
8710	Engr, Architect, Survey Svcs	5.9%
8720	Account, Audit, Bookkeep Svcs	27.2%
8740	Mgmt and Public Relations Svcs	14.5%
	Weighted Average	20.8%

These data show that the average rate of return for these four service categories is roughly 21%. Taking a conservative view of these data and based on his experience with the energy services industry, I conclude that a 15% before-tax rate of return applied to HECO's expenditures on DSM is an appropriate incentive for HECO.

HECO T-12 at 31-32.

Shortfall Compensation

Dr. Violette proposed that lost margins (i.e., the shortfall in the contribution to fixed costs) be based on the rolling period method where the average length between the last four rate cases be used to set a limit for the length of time lost margins can accumulate. This would allow lost margins to accrue for only about three years, after which they would be truncated to zero.

HECO T-12 at 29.

A number of states have limited the amount of time lost margins can accumulate (Massachusetts and New Jersey). Massachusetts used this Rolling Period Method through which the lost margins associated with a specific year of DSM implementation would be recovered for a period equal to the average length of time between each of a company's last four rate cases, or until new rates take effect subsequent to a new base rate proceeding. First, the Massachusetts Department of Telecommunications and Energy (DTE, formerly DPU)) found that, because the Rolling Period Method allows for the recovery of lost margins for a period equal to the average, historical time span between rate cases, it provides a reasonable approximation of an electric company's costs that would be sought in a rate case proceeding and thus represents a reasonable approximation of the extent to which the company's implementation of DSM programs will, over time, permit the company to reduce the costs of providing electric service to its ratepayers. D.P.U. 94-4-CC at 42 (1994). Second, the DPU found that the Rolling Period Method will provide the utility with a direct and consistent incentive to reduce costs and improve the efficiency of its operations. Finally, the DPU found that this method is consistent with precedent, could be applied to all electric companies, and would be relatively simple to administer.⁹⁹ HECO T-12 at 29-30; see Tr. (8/31) at 835-36 (Violette).

The estimate of the shortfall in the contribution to fixed costs was developed to be equal to the annualized amount of fixed cost contribution to revenue lost from the implementation of DSM programs over a period of three program years. HECO T-10 at 54.

Fixed costs include administration and general ("A&G") costs, fixed operations and maintenance costs, depreciation, taxes, and a return on rate base. These costs are recovered

⁹⁹ After restructuring in Massachusetts, lost revenues was not deemed to be a significant issue for distribution electric utilities as their generation units were sold off. While lost revenues has declined in importance for distribution-only utilities, the distribution electric utilities in Massachusetts do continue to earn an incentive on their DSM expenditures. Response to CA-IR-323.a, Docket No. 04-0113.

through energy and demand charges in the Company's rates. When DSM measures reduce the amount of energy and demand sold, the Company does not recover the fixed costs embedded in those rate components. HECO T-10 at 54-55.¹⁰⁰

Three program years was used to derive the test year fixed cost shortfall, because three years is approximately equal to the average interval between rate cases, based upon the last four rate cases and the current rate proceeding. This method of deriving the number of program years is similar to the Rolling Period Method cited in HECO T-12. HECO T-10 at 55.

To avoid double counting the recovery of fixed costs if a rate case were to be filed in three years (i.e., in 2008), any amount of fixed cost shortfall that is recovered under this mechanism, but is later embedded in base rates through a reduction in future test year sales, would be returned to customers through a proposed DSM Reconciliation Clause. See HECO T-10 at 55-57.

Performance Based

HECO's proposed DSM Utility Incentive was "performance-based", to the extent practical, using a base-rated mechanism.¹⁰¹ Performance-based incentives are incentives that are earned based on how much of a pre-specified goal a company achieves. If the company exactly meets the goal, it would be awarded the target incentive amount. Lesser achievements would earn lesser awards, and over-achievement would be granted additional awards so that the incentive mechanism continues to promote the desired actions even after target goals are met.

¹⁰⁰ The fixed cost contribution per kWh that is recovered through the energy charge is equal to the revenue received per kWh less the fuel and variable O&M costs. Fuel and variable O&M costs vary with the amount of kWhs sold and are not incurred if the kWh is not sold. Since all of the revenue recovered by the demand charge is a contribution to the cost of capacity, the fixed cost contribution per kW is the entirety of the demand charge. To calculate the estimate of shortfall in fixed cost contribution by program year, a unit fixed cost per kWh by DSM program that combined both the fixed cost contribution from energy and demand was calculated for a historic year. HECO T-10 at 55.

¹⁰¹ HECO T-10 at 53-54; see response to CA-IR-306 in Docket No. 04-0113.

In HECO's case, if HECO failed to achieve the program KW reduction target it would recover less than the utility incentive included in base rates. If HECO exceeded the program KW target, it would recover more than the utility incentive included in base rates. The Company should be able to earn its full 15% return by achieving the agreed-upon level of KW savings. If the KW savings were greater than or less than the target amount, the incentive would be adjusted up or down proportional to the level of achieved savings as a share of the target savings.¹⁰² In this way, HECO would only receive an incentive in proportion to how successfully the Company achieved the objectives of the energy efficiency programs for which the incentives are designed.

In order to make the mechanism performance-based, HECO proposed to reconcile the amount of DSM utility incentives with actual DSM impacts. Within three months after the end of the calendar year, HECO would reconcile the actual amount of program kWh saved with the test year estimates. If the actual savings are lower than the test year estimates, HECO would return a prorated share of the incentives. If the actual savings were higher than the test year estimates, HECO would collect a prorated share of the incentives.

DSM Reconciliation Clause

HECO proposed the DSM Reconciliation Clause¹⁰³ because:

- (1) It would reconcile actual customer incentives paid with customer incentives included in base rates,
- (2) It would recover the costs of approved DSM programs not included in base rates,
- (3) It would provide an accounting of the actual performance of the DSM programs, and

¹⁰² For example, if HECO achieved 110% of the target kWh savings, the company would receive 110% of the target incentive dollars; if the Company achieved only 90% of the target savings, it would receive only 90% of the target incentive dollars.

¹⁰³ See HECO T-10 at 57-61.

- (4) It would allow only the actual utility incentive earned by the Company to be recovered.

The Company proposed to reconcile only the customer incentives and not the entire program cost. Program costs include administration, advertising, labor and other components, the cost of which are sometimes not easily supported by documents as directly attributable to the implementation of DSM programs. On the other hand, customer incentives:

- (1) Are clearly attributable as costs of the programs,
- (2) Vary with customer acceptance of the DSM measures, and are, therefore, not directly under the control of the Company,
- (3) Are readily quantified using incentives paid to program participants, and
- (4) Account for more than half of DSM program costs.

The DSM Reconciliation Clause would be implemented on a single fixed price per kWh saved basis and applied to all rate schedules (except Schedule F). Within three months of the end of the calendar year, the Company would include in its A&S Report the actual customer incentives paid and annualized kWh saved by all DSM programs for the program year.

The DSM Reconciliation Clause would consist of two components. In the first component, the actual customer incentives would be compared to the test year customer incentives and the difference would be included in the reconciliation balance. (This component would also recover costs for programs not included in base rates.¹⁰⁴)

In the second component the actual annualized kWh saved during a calendar year, due to the measures installed and actions taken in such year, would be compared to the targeted savings

¹⁰⁴ The DSM Reconciliation Clause also would be used to recover the program costs of approved DSM programs that are not included in base rates. If new DSM programs targeting different measures or market segments to further reduce peak demand are approved by the Commission, the cost of these programs would be recovered through the DSM Reconciliation Clause (as modified by the Commission in approving such new DSM programs) on a prospective (concurrent) basis. HECO T-10 at 61.

performance. The difference between actual and targeted kWh reductions (actual less target) would be multiplied by the fixed price per kWh incentive. If the difference was positive (i.e., actual is greater than target) it would be added to the reconciliation balance. If the difference was negative (i.e., the actual is less than target) it would be subtracted from the reconciliation balance.

The reconciliation surcharge would be equal to the sum of the two components that make up the reconciliation balance (plus applicable revenue taxes) divided by the projected sales for the period. The collection or return would be made over the following 12 months, or a shorter period if the amount to be collected/returned was too small in dollar terms to recover over a 12-month period, in cents/kWh through the DSM Reconciliation Clause. See proposed Tariff Sheet No. 89 in HECO T-22; HECO T-10 at 59; HECO-1025. In order to simplify the reconciliation, interest would not be included in the calculation.

4. EE DSM Docket Utility Compensation Proposals

HECO's Alternatives

In this proceeding, HECO proposed two additional alternatives for DSM utility compensation. The first alternative is a shared savings mechanism as the basis for utility compensation for the administration and aggressive pursuit of energy efficiency. The advantages posed by the shared savings mechanism include: (1) it is performance-based, such that higher energy savings and load reductions, and lower program costs result in greater levels of compensation; (2) the value of benefits are linked to actual system needs; and (3) the mechanism is currently in use and familiar to the Commission, Consumer Advocate, and the Company. HECO FSOP at 78. HECO's first utility compensation alternative does not include the recovery of fixed cost shortfalls between rate cases. The shortfalls are recovered through base rates in a

general rate case when the impact of energy savings resulting from DSM programs is included in the test year sales estimate. Response to RMI/HECO-IR-19.b.

In addition, HECO proposed to reduce its share of the savings by half, from 10% to 5%. HECO FSOP at 78. Based on the avoided costs provided in Exhibit 12 to HECO's FSOP, HECO estimated that a 5% share of the net benefits would be approximately \$3.0 million annually assuming that the utility continues to be the administrator for all DSM programs. See Exhibit 13, lines 27-32, to HECO's FSOP. The calculation of net benefits would use utility costs as program costs, excluding measurement and evaluation costs that would be incurred separately by the Commission. Utility compensation would also be excluded from program costs, because it is not a direct program cost, but rather the result of the performance-based compensation mechanism.¹⁰⁵ HECO FSOP at 78-79.

The Company's second alternative proposed the recovery of the shortfall in fixed costs combined with 15% of program costs (excluding the program costs for the load management programs). However, the shortfall in fixed costs recovery would be limited to one year's worth of shortfall and would not be cumulative. The approximate compensation level would be \$3.6 million for the first year of full DSM program implementation, and about \$5 million thereafter as

¹⁰⁵ DSM utility compensation is paid for by ratepayers, but should not be included in the costs used in the calculation of shared savings. A circular logic would result if utility compensation were to be considered a program cost for calculating net benefits for purposes of the compensation mechanism. Response to CA/HECO-IR-11; see also HECO's response to RMI/HECO-IR-6. For example, lowering program costs should increase net benefits and result in higher compensation for the utility. However, if the higher compensation was included as a program cost, then program cost would increase as a result, and therefore, lower compensation.

This would be akin to calculating the profits of a business for income statement purposes and then recalculating the income statement by increasing expenses by those same profits, simply because the profits are paid for by its customers. The program costs included in HECO's proposed Modified Utility Cost Test shared savings mechanism should conform to the cost elements included in the "California Standard Practice Manual: Economic Analysis of Demand-side Programs and Project". Response to RMI/HECO-IR-5. If the higher compensation was included as a program cost, then program cost would increase as a result, and therefore, lower compensation. See response to RMI/HECO-IR-6.

shown in lines 33-39 of revised Exhibit 13. In this alternative, the Company included the recovery of fixed costs mechanism as an interim transition measure until the issue of decoupling can be evaluated. If a decoupling mechanism is adopted, HECO would implement that decision and the temporary transition fixed cost recovery mechanism would terminate. HECO FSOP at 79.

Under either alternative, the compensation would not be paid to HECO unless the Company attained at least 80% of the energy efficiency KW load reduction goal. Once the 80% threshold attainment level is reached, HECO would then be eligible for compensation as determined by the mechanism. Further, under either alternative, the amount of total compensation would be capped at \$4.0 million before taxes. HECO FSOP at 79.

An 80% threshold is a relatively high standard. However, utility compensation should be allowed not only when it achieves superior performance with respect to DSM programs, since that is not the case on the supply side, and would not create a level playing field for the expenditures with respect to DSM resources versus supply side resources. If net benefits are being provided to ratepayers, then the utility should receive some compensation. Tr. at 862-63 (Violette). In other words, whatever benchmark is set should not prevent the utility from earning some compensation on energy efficiency spending when the spending provides net benefits to ratepayers. Tr. (8/31) at 866 (Violette).

Selection of Utility Compensation Mechanism

HECO made three utility compensation proposals in order to facilitate discussion. HECO stated that it was open to any of the three proposals, or some version of any of the three proposals in order to come to substantial agreement on the issue of utility compensation. See response to DOD/HECO-IR-1-17. HECO also stated that it is willing to consider alternative

compensation mechanisms as well as different levels of compensation, provided that the incentives are performance-based, i.e., that are allowed to rise or fall depending on the actual energy and demand reductions realized each year. Response to DOD/HECO-IR-1-16; see also responses to DOD/HECO-IR-1-2, DOD/HECO-IR-1-17, RMI/HECO-IR-19.a, and HSEA/HECO-FSOP-7.

EPA Report

The EPA Report identified several key factors characterizing utility incentives:

- (1) Net DSM benefits are often a key input into incentive mechanisms.
- (2) Where incentives are based on net DSM benefits, the incentive is calculated based on every unit of TRC achieved (not just above a target).
- (3) Utilities have a minimum performance level that they must exceed before they are eligible for an incentive award. This minimum performance level is typically set at some level below the utility's DSM target.
- (4) The metric for the minimum performance level is often different than the metric upon which the incentive payment is based.

EPA Report at 31-32.

Based on those key factors, the EPA declared that: "The alternative DSM incentive mechanism offered by HECO appears more reasonable when compared to its initial proposal. The moderate share of savings proposed combined with a performance target appear favorable when compared to an approach based on a percentage of expenses with no performance target." EPA Report at 37-38.

HECO's first alternative DSM incentive mechanism, which is based on a share of the net benefits with both a minimum performance level (80% of the DSM target) and a cap (\$4 million) on the amount of incentive received, would be an acceptable approach from the Company's perspective. HECO FSOP at 78-80.

Panel Hearings

HECO's current proposal is that utility compensation should be based on 5% of the net benefits of the energy efficiency DSM programs, based on the modified utility cost test.¹⁰⁶ (The utility cost would not include the compensation paid to the utility as an incentive.) The utility would receive no compensation if it achieved less than 80% of the annual megawatt goal, there would be a cap on the incentive of \$4 million before tax per year, and the compensation would be paid on a prospective basis, trued-up in the following year for actual achievements. Tr. at 869-70, 875-76, 909-10, 912, 952 (Hee). Under this mechanism, HECO confirmed that it was not asking for lost margin recovery outside of a rate case. Tr. at 922 (Hee).

The two determinations to be made by the Commission are the annual megawatt goals, and the thresholds to be achieved before any compensation is earned. Tr. at 873 (Hee). The 5% of net benefits would be based on regulatory judgment. The range of percentages is 5 - 20 percent in other jurisdictions, so 5% is at the low end of the range. Tr. at 874-75, 877 (Violette). The 80% threshold was based on HECO's willingness to commit to a substantial amount of the energy efficiency goal before receiving compensation, as well as the recognition that there was a need to have a threshold. Tr. at 875-76 (Hee).

Some other measure of cost could be used in measuring net benefits. For example, RMI proposed using TRC costs. Tr. at 910, 913 (Data). There are difficulties in using TRC costs, however, which is why utility costs were picked when the existing shareholder incentive mechanism was established. In addition, the percentage of net benefits allowed as utility compensation should take into account the cost measure used to determine those benefits.

¹⁰⁶ This is the first alternative discussed above.

RMI's Alternative

RMI's utility compensation mechanism was tied to avoided investment costs, and assumed that decoupling was in place so that lost margin recovery did not have to be taken into consideration. Tr. at 942-43 (Freedman); see Response to HECO/RMI-IR-142.

There was substantial discussion regarding the return on equity that the Company would forego as a result of implementing DSM programs. HECO also questioned RMI's calculation of the avoided return on equity, since RMI looked at annual revenue requirements and did not take into account the fact that the utility would receive a return on investment during every year the avoided plant was available. See Tr. at 900 (Violette), 143-46 (Freedman).

Conceptually, RMI made two errors in its calculations: (1) it applied the equity percentage to the revenue requirements, rather than to rate base and (2) it did not gross up for income taxes. In the "No Future EE DSM" case, the capital investment is made in 2015. In the "With Future EE DSM" case, the capital investment is made in 2024. The differential average rate base investments between the coal unit installed in 2015 ("No Future EE DSM" case) and the coal unit installed in 2024 ("With Future EE DSM case") can be calculated. To determine the amount equivalent to the foregone net income of investing in the coal unit, the equity % times the rate of return on equity should be applied to the average rate base difference between the two plans (rather than the annual revenue requirements difference). In order for shareholders to net the equivalent net income amount over the study period, the amount collected from ratepayers would also have to be grossed-up for income (and revenue) taxes.

In HECO's view, the foregone return on equity would not necessarily serve as a basis for setting the utility compensation (and could result in substantially more compensation than the Company is requesting if correctly calculated), but HECO committed to providing a calculation

of avoided capital costs so that that information would be available to the Commission. See Tr. at 915, 917-20 (Hee). HECO will provide the calculation to all parties and participants.

Third-Party Administered DSM Programs

HECO does not plan to seek to recover lost margins and shareholder incentives on programs administered and implemented by third-parties. However, in the utility's general rate cases the lost margins due to third-party DSM programs would be embedded in the utility's new base rates as the result of the test year sales estimate. (Note that the third-party administrator, on the other hand, would likely receive compensation for administering its DSM programs.)

Response to CA/HECO-IR-12.

Transition

Should DSM expenses and utility compensation be approved for inclusion in base rates, HECO proposed that, during the period until the next rate case (when recovery would be incorporated in base rates), HECO recover the DSM expenses and utility compensation through a DSM surcharge.

5. Alternative Compensation Methods Explored In Rate Case

In his rate case testimony, Dr. Violette described some of the other options he considered before arriving at his recommended "enterprise model" approach. He screened a number of alternatives and gave consideration to four other options. These options would also be combined with lost margin recovery capped at three years to complete the package of DSM utility incentives. The other specific options considered included:¹⁰⁷

(1) Fixed payment method – This would call for a simple fixed payment to HECO for every kWh it demonstrates has been conserved through the utility's programs. This approach would be performance-based in that HECO would only receive payments for what was achieved. In addition, it has parallels to the way in which supply-side investments are treated. In this case,

¹⁰⁷ HECO T-12 at 33-35; see HECO FSOP at 74-78.

HECO could be viewed as building a DSM power plant. Once the power plant is constructed, the utility would receive payment for the output of that plant (i.e., conserved kWh and kW) just as a power plant is paid for by the sales of kWh produced by the plant. One major difference is that a conserved kWh is really a multi-year transaction. A kWh not conserved is sold each year, but once an energy-efficient measure is installed that reduces kWh use, that kWh is never sold again. This is a very important distinction. The result is that the price the utility should get for a conserved kWh is greater than the current price for a single kWh sold.

(2) Adjusted Return on Equity ("ROE") Approach – This approach would work within the Commission's historical rate of return regulation approach where revenue requirements would be determined based on capital investment, a return on that investment, and the variable or operating costs. In this case, the return on equity would be adjusted to account for HECO's efforts in DSM and load management. This could be done by setting the test year ROE higher by as much as 1% (given the magnitude of the investment HECO is proposing), or it could float based on actual DSM accomplishments. A performance-based ROE would require prices to change each year to reflect the newly calculated ROE. The principle reason for not considering this approach is that it is not clear and direct. The setting of an ROE is subjective, and it would not be clear if the test year ROE really represented just the efforts on energy efficiency or if it might include some other factors. This goes against one of the principles articulated by NARUC that the incentives should be clear and direct.

(3) Capitalization of DSM Investment – This approach would recognize that investments in energy efficiency over time essentially create a DSM power plant that continues to deliver kWh for the entire life of the energy efficiency measure installed (e.g., high efficiency appliances and lighting can produce kWh savings every year for the life of the measure). This approach would take any capital costs (e.g., purchase of lighting equipment) as well as expenses and put them into an account that would be subject to a rate of return similar to that attained on supply-side investments. This "plant" would also depreciate over time, tied to the lifetimes of the measures installed, and this would eventually return the base investment to HECO, similar to depreciation. The drawback to this approach is that it involves the creation of a regulatory asset as differentiated from a hard, tangible asset such as a generating unit. The existence of the regulatory asset is dependent upon the discretion of regulators, which poses a greater risk of recovery for the utility and is not as well received by the financial community.¹⁰⁸ According to NAP: "Capitalizing energy efficiency investments may be limited by the magnitude of "regulatory assets" that is appropriate for a utility. Bond ratings may decline if the utility asset account has too many assets that are not backed by physical capital." NAP at 2-9.

¹⁰⁸ Regulatory assets are sometimes perceived by financial analysts to pose a cost recovery risk, depending on how confident the rating agencies and analysts are that the specific asset is safe from reconsideration by the regulatory commission, legal challenge by third parties, or other unforeseen factors. Thus, regulatory assets have an additional hurdle to clear before they are on equal footing with capital assets. It could be argued that this very fact suggests that regulatory assets are viewed less favorably by the financial community, although it may vary on a case-by-case basis and could be influenced by which analysts are offering their opinions on a given asset or utility portfolio. See response to CA-IR-326, Docket No. 04-0113. Dr. Violette was not presently aware of any U.S. gas or electric utility that capitalizes DSM expenditures and recovers both the amortization and return on investment through rates. Response to CA-IR-327, Docket No. 04-0113.

(4) Bounties or Milestone Payments – This approach would provide HECO with payments tied to reaching specific milestones. These milestones could be tied to multiple factors such as the number of participants in a program, net savings from a program, program expenditures, number of attendees at energy efficiency workshops, or any other milestone that might be developed. This approach was used for several years in California because it was felt that this would simplify the review of utility filings for incentives. This has not turned out to be the case. Dr. Violette's firm is currently working on a project to assess whether the California utilities met their agreed upon milestones and there are always measurement questions (e.g., were the attendees at a workshop really building operators or just a group of people that the utility managed to get into the room). Documentation regarding the meeting of the milestones has been as difficult as the shared savings approach used earlier by the California utilities.

6. Alternatives to Lost Margin Recovery - Decoupling

As HECO has noted, any kWh saved by the customer through the implementation of energy efficiency measures reduces revenue to the utility below what it would have received in the absence of DSM. This also results in fewer kWh sold on which to recover the fixed costs that are incurred to maintain the utility's entire electric system, since the fixed costs are incurred even absent the implementation of DSM programs. Without an identified mechanism to recover these system costs, the Company is left with alternatives such as more frequent rate cases or revenue decoupling.

Lost margin recovery is an issue between rate cases because the revenue impact of sales reductions caused by post-test year energy efficiency are not accounted for in the rate case test year sales forecast. Annual rate cases would take care of the sales reductions, but would place a burden on the Commission, Consumer Advocate, and Company staff.

Revenue decoupling refers to separating the recovery of fixed costs from the amount of electricity sales. The argument is that if the recovery of fixed costs is no longer tied to sales, then the inherent utility conflict between selling more electricity to increase revenue and reducing sales through energy efficiency is eliminated.

While the concept of decoupling the recovery of fixed costs from sales is not hard to

envision conceptually, the re-coupling effort is difficult to implement and is an example of a “devil is in the details” conundrum. How should the utility recover its fixed costs, if not through the sale of electrical energy? RMI proposed a method based on fixed revenue-per-customer.¹⁰⁹ Under this proposal, the utility would recover base revenue through its current rate schedules (i.e., through the base customer, energy, and demand charges). However, on a periodic basis, the revenue collected would be reconciled against the revenue calculated by multiplying the number of customers times a fixed dollar per customer revenue figure. The difference, if any, would be recovered/returned to ratepayers, resulting in electric utility revenues being determined by the fixed dollar per customer index. While this recoupling of revenues to the number of customers sounds simple, an in-depth analysis would need to be performed in order to provide a reasonable assurance that this mechanism does in fact achieve the desired outcome.

Decoupling is complex. Some of the issues involved in decoupling include how to re-couple and whether to decouple all sales or sales only from selected customer classes. Additional issues include whether demand should be decoupled as well as energy, and the determination of the effect on ratepayers of the re-coupling mechanism. For example, depending on which customer classes are decoupled and which re-coupling index is used, the periodic reconciliation process could result in some customer bills increasing and other bills decreasing.

Decoupling was addressed by the EPA Report. According to the EPA Report, decoupling requires two major steps for implementation: a “policy decision to separate energy sales from revenues”, and “to recouple utility revenues to something other than actual kWh sales.” EPA Report at 29. The EPA Report also noted that “The issues with decoupling are extremely complex and require a more comprehensive examination than provided in this document.” EPA

¹⁰⁹ RMI did not propose decoupling for large power or commercial customers. Tr. (8/31) at 894-95 (Freedman).

Report at 30. It also listed a number of key questions that need to be considered in decision making. Similar questions were highlighted in a March 2004 study, "Decoupling for Idaho Power Company", written by Eric Hirst, a copy of which was attached as Exhibit B to HECO's Response to EPA Report.¹¹⁰

The Companies agree with the EPA that the policy decision to separate energy sales from revenues requires a more comprehensive examination, and have taken the position that it is not practical for that examination to occur within the current scope of the Energy Efficiency Docket. As noted by the EPA Report, decoupling revenue from sales necessarily involves recoupling revenues to another factor (presumably one that is related to costs), and the establishment of a mechanism to adjust rates for the difference. While the concept of decoupling is relatively straightforward, the mechanics of recoupling revenues to another factor, and the implications for customers and the utility, are much more complex. The Companies are open to reviewing some of these considerations in another forum, and/or in a collaborative working group, but the consideration and implementation of a specific decoupling mechanism should be considered by the Commission in a future general rate proceeding.

Because of the complexities of the decoupling effort, a more comprehensive examination of decoupling was not undertaken or completed in this docket. However, in spite of these complexities, the Companies have begun to examine decoupling as an alternative to more frequent rate cases in order to fairly recover its fixed costs, taking into account the insight gained in this proceeding. See HECO FSOP at 72. HECO has retained consultants to help HECO analyze decoupling, and expects the analysis to take six to twelve months to complete. Tr. at 842

¹¹⁰ HECO's response to the EPA Report was filed August 22, 2006.

A number of the criticisms of the decoupling mechanisms developed in other jurisdictions were identified during the panel hearings. See Tr. at 846-47, 849-50 (Freedman, Violette).

(Waller). The overall effort to produce a proposal for the Commission to consider would depend on the ability of a working group to come to a consensus on a schedule and consensus on the proposal. Tr. at 843 (Waller). One of the parties that would need to participate in the working group would be the Consumer Advocate, and the Consumer Advocate was unable to commit to a schedule for participating in such a working group. Tr. at 844-45, 851-52.

7. Penalty Proposals

The Company's position is that penalties for unmet DSM targets or goals are not necessary. HECO FSOP at 41. A properly designed incentive (i.e., one that adequately rewards good performance towards well defined objectives) provides sufficient incentive as demonstrated by HECO's DSM program performance under the existing shareholder incentive mechanism. A properly designed utility incentive does not need to penalize "bad performance" because the Commission already has the ability to do so under its existing regulatory powers. Therefore, a separate and additional penalty for bad performance is not necessary. Response to CA/HECO-IR-8; see Tr. (8/31) at 855-56 (Waller).

Some parties, such as DOD, tried to justify having penalties on the grounds that an incentive mechanism should be "symmetric". Tr. at 854, 949 (Brubaker). Such a penalty would be triggered by a "failure" to achieve an "expected" level of performance determined in the IRP process, not by imprudence. See Tr. 855, 861, 949 (Brubaker).

Under such a proposal, the "baseline" compensation for meeting the expected performance would be zero. If performance was less than expected, the compensation would be negative. In effect, the utility would not fully recover its costs, even though the proponents of such a mechanism support full cost recovery. See Tr. 934-937 (Brubaker).

Such a position is unreasonable. If there is a penalty, it should not be triggered simply by

the “failure” to meet the targeted level of performance. Any penalty should be triggered only if the utility fails to achieve a minimum acceptable level of demand or energy savings. Any other result would be unfair. See Tr. 950-51 (example provided by Mr. Hempling).

Falling short of the goal would not necessarily mean that the utility acted imprudently. Tr. 948 (Brubaker). The utility’s ability to meet the expected level of performance would depend on matters, such as customer acceptance, that are beyond the utility’s reasonable control. Thus, the utility could “fail” to meet the expected level of performance based upon matters that were beyond its reasonable control, rather than due to imprudent behavior. See Tr. 940-42 (Brubaker).

Through his follow up questions, Mr. Hempling also demonstrated the difficulty in setting the minimum “expected” performance level that would have to be met to avoid penalties (i.e., to avoid recovering less than all of the utilities’ DSM program costs). See Tr. at 946-48, 951-52.

For example, a penalty should not be triggered by the “failure” to achieve a TRC benefit/cost ratio of 1.0 or greater, even though that might be the desirable outcome. If the baseline is based on a TRC ratio of 1.0, then the utility would not recover its costs even if the program was approved with the expectation that it would not achieve a TRC ratio of 1.0 (which would be the case with the REWH program).¹¹¹ Even the proponents of penalties did not propose to use the TRC ratio to set the required benchmark level of performance to avoid penalties. See Tr. at 938-40 (Brubaker).

RMI pointed out the difference between an incentive mechanism that included penalties

¹¹¹ However, not included in the shared savings mechanism as currently derived is any quantification of benefits such as job creation and reducing the use of fossil fuel related to the installation of solar water heating systems.

for failing to meet a target level of performance, and a performance-based incentive mechanism under which the Commission establishes a baseline towards which the utility is being incited to move. Tr. at 857 (Datta). In RMI's view, the latter mechanism "will create the management drive to achieve the programs because it aligns the DSM programs with the profit motivation of the corporation the same way supply side is aligned." Tr. at 858 (Datta). In other words, the utility is given the opportunity to "earn some return" on the achievement of DSM objectives, as the IRP Framework contemplates. Tr. at 859 (Datta). The goal is to assure that the utility, by virtue of implementing DSM programs, does not earn less profits (subject to a reasonable ceiling). Tr. at 860 (Datta).

VII. CONCLUSION

Based on the foregoing and the entire record herein, HECO respectfully requests that the Commission: (1) approve HECO's proposed seven energy efficiency programs and authorize HECO to implement said programs and (2) approve HECO's proposed cost recovery and utility compensation mechanisms.

DATED: Honolulu, Hawaii, October 25, 2006.



THOMAS W. WILLIAMS, JR.
PETER Y. KIKUTA

Attorneys for
HAWAIIAN ELECTRIC COMPANY, INC.
HAWAII ELECTRIC LIGHT COMPANY, INC.
MAUI ELECTRIC COMPANY, LIMITED

EXHIBIT “A”

PROCEDURAL HISTORY

HECO's Energy Efficiency DSM Programs

HECO initially implemented five 5-year energy efficiency demand-side management ("DSM") programs, which were approved by the Commission in 1996. The Commission approved one-year extensions (to December 31, 2001) of HECO's Residential Efficient Water Heating Program, its Residential New Construction Program and its three Commercial and Industrial ("C&I") DSM programs by Order No. 18208 (November 27, 2000) in Docket No. 94-0206, Order No. 18207 (November 27, 2000) in Docket No. 94-0216 and Order No. 18206 (November 27, 2000) in Docket Nos. 94-0010, 94-0011 and 94-0012 (Consolidated), respectively.

On May 31, 2000 and June 30, 2000, respectively, HECO filed applications requesting approval of (1) a new C&I DSM program, which would have consolidated the DSM measures in HECO's three existing C&I DSM programs, for a period of five years, and (2) a new Residential DSM program, which would have consolidated the DSM measures in HECO's two existing Residential DSM programs, for a period of five years.

HECO and the Consumer Advocate finalized letter agreements dated and filed October 5, 2001 (C&I DSM programs) and October 12, 2001 (Residential DSM programs), under which HECO's three existing C&I DSM programs and two existing Residential DSM programs would be continued until HECO's next rate case (which HECO committed under the letter agreements to filing within three years using a 2003 or 2004 test year) in lieu of HECO continuing to seek approval of new 5-year DSM programs. (HECO submitted two letter agreements for the Residential DSM programs - - one executed by all parties to the docket that addressed the issues raised by the Consumer Advocate, Hawaii Solar Energy Association ("HSEA") and Life of the

Land (“LOL”), and one executed by HECO and the Consumer Advocate that addressed the issues raised by the Consumer Advocate.) Under the agreements, any DSM programs to be in place after HECO’s next rate case would be determined as part of the case. By Order Nos. 19019 and 19020, issued November 15, 2001, the Commission approved the temporary continuation of HECO’s five existing energy efficiency DSM programs, subject to certain conditions.

On August 7, 2003 and August 12, 2003, HECO filed agreements with the parties to the stipulations, which modified the stipulations by delaying the required filing of a general rate case by approximately 12 months such that HECO would utilize a 2005 test year for the filing. The Commission approved the new agreements by Order Nos. 20392 and 20391, issued August 26, 2003 in Docket Nos. 00-0209 and 00-0169, respectively.

HECO’s Load Management Programs

HECO filed applications requesting approval of (1) a Residential Direct Load Control (“RDLC”) Program, on June 6, 2003 in Docket No. 03-0166, and (2) a C&I Direct Load Control (“CIDLC”) Program, on December 11, 2003 in Docket No. 03-0415. The Commission approved (1) the RDLC Program, as modified by a stipulated agreement between HECO and the Consumer Advocate (filed June 30, 2004), by Decision and Order No. 21415 issued October 14, 2004, and (2) the CIDLC Program, as modified by a stipulated agreement (filed July 15, 2004), by Decision and Order No. 21421 issued October 19, 2004.

At the panel hearings, HECO stated that it intends to file proposed modifications to its load management programs by the end of the year. As has been indicated in other filings, HECO intends to add a residential air conditioning load control component to its RDLC Program, and

intends to offer expanded options, including a customer demand response component, in its CIDLC Program.

HECO's Proposed Pilot RCEA Program

HECO filed an application requesting approval of a pilot Residential Customer Energy Awareness Pilot ("RCEA") Program on May 15, 2003 in Docket No. 03-0142. HECO filed its "Application/IR Responses Clarification," in the form of a revised application on October 7, 2004.

Following oral arguments on February 2, 2005, the Commission issued final Decision and Order No. 21756 ("D&O 21756") on April 20, 2005 denying the application (as revised on October 7, 2004) without prejudice, citing concerns raised by the Consumer Advocate.¹ The Commission noted that (1) it "understands HECO's need and desire to educate its residential customers about energy matters, including conservation," and (2) "[a]n educational program, such as the RCEA Pilot Program may be better suited as one component of a portfolio of DSM measures, which may be considered in other proceedings before the Commission, if HECO so chooses." D&O 21756 at 9-11.²

When the Commission issued D&O 21756 denying HECO's request to implement the RCEA Program, without prejudice, HECO proposed in its rate case to implement a customer

¹ The Consumer Advocate filed a Statement of Position on December 1, 2004, and HECO filed its reply on December 28, 2004. Although the Consumer Advocate opposed the application for the RCEA Pilot Program, the Commission noted in its D&O that the "Consumer Advocate makes clear that it does not dispute HECO's concern regarding its long-term ability to meet the growing energy demands of the residential customer class during the evening peak." D&O 21756 at 9.

² The Commission stated that:

The commission understands HECO's need and desire to educate its residential customers about energy matters, including conservation. We further recognize that educating residential customers to encourage energy conservations and make them aware of (1) measures that can be taken during the crucial 5:00 p.m. to 9:00 p.m. priority peak period; and (2) their impact on the need for future electrical generation may provide some relief to HECO in reducing peak loads, which ultimately will assist HECO in maintaining its generating system reliability guideline. D&O 21756 at 9-10.

awareness campaign instead. In order to fund the campaign, HECO increased the test year non-labor Informational Advertising expense by \$750,000.

HECO's 2005 Test Year Rate Case

In its Application, filed November 12, 2004 in Docket No. 04-0113 (the "Rate Case Docket"), HECO requested the approvals necessary (1) to implement seven new energy efficiency DSM programs; (2) to recover the program costs for the seven energy efficiency DSM programs, an RCEA³, and two load management DSM programs through base rates; (3) to implement and recover the costs of a proposed DSM utility incentive (given discontinuance of the current lost margin recovery and shareholder incentive mechanisms pursuant to the prior DSM stipulations) through base rates; and (4) to reconcile DSM customer incentives and the DSM utility incentive through a proposed DSM Reconciliation Clause.

The new energy efficiency DSM programs that HECO proposed in the Rate Case Docket included the: (1) Commercial and Industrial Energy Efficiency ("CIEE") Program; (2) Commercial and Industrial New Construction ("CINC") Program; (3) Commercial and Industrial Customized Rebate ("CICR") Program; (4) Residential Efficient Water Heating ("REWH") Program; (5) Residential New Construction ("RNC") Program; (6) Residential Low Income ("RLI") Program; and (7) Energy\$olutions for the Home ("ESH") Program.

HECO filed its general rate case in accordance with Order Nos. 19019 and 19020, filed on November 15, 2001, in Docket Nos. 00-0169 and 00-0209, respectively, which authorized HECO to temporarily continue its existing Commercial and Industrial DSM programs, and existing Residential DSM programs, until HECO's next rate case, and in which HECO

³ At the time HECO filed its application in the Rate Case Docket, as well as the time the Commission filed Order No. 21698 opening the EE DSM Docket, a decision and order had not been filed in the RCEA Program proceeding, Docket No. 03-0142. Subsequently, as previously discussed, on April 20, 2005, the Commission filed D&O 21756 denying HECO's request to implement the RCEA Program, without prejudice.

committed to file its next rate case within two to three years using either a 2003 or 2004 test year in accordance with H.A.R. §61-6-187 (4) (A) and (B). By Order Nos. 20391 and 20392, filed on August 26, 2003, in Docket Nos. 00-0169 and 00-0209, respectively, the Commission authorized a delay of the filing of HECO's general rate case by approximately 12 additional months such that HECO would utilize a 2005 test year for the filing.

HECO also proposed to modify the cost recovery mechanism for its two approved load management DSM programs including (1) the RDLC Program approved in Docket No. 03-0166 and (2) the CIDLC Program approved in Docket No. 03-0415 (so that program costs would be recovered entirely through base rates, rather than partly through base rates and partly through the DSM Adjustment component of the IRP Clause).

In addition, HECO proposed that the proposed RCEA Program duration be extended from two years to five years (to match the five-year duration for other programs) and that the cost recovery mechanism for the proposed program be modified so that the program costs are recovered entirely through base rates (rather than partly through base rates and partly through the DSM component of the IRP Clause), if the program is approved in Docket No. 03-0142.

In lieu of pursuing the continuation of the recovery of lost margins and shareholder incentives for its energy efficiency DSM programs through a surcharge mechanism,⁴ HECO requested approval in its rate case application for a proposed "DSM Utility Incentive." According to the application, the purpose of the mechanism generally would be to provide a financial incentive to the utility to help ensure the success of the DSM programs by taking away the disincentives of DSM programs, and by aligning positive incentives with successful program delivery. In effect, the mechanism would recognize the energy efficiency services provided by

⁴ For HECO's initial energy efficiency DSM Programs, HECO was allowed to recover program costs, lost margins and shareholder incentives through the DSM Component of its IRP Cost Recovery Provision ("IRP Clause").

HECO through the DSM programs and the shortfall in fixed cost contribution due to the energy reductions resulting from the DSM programs.

Motions to intervene or to participate also were filed on behalf of organizations and an individual whose interests were related to HECO's proposed energy efficiency DSM programs. On December 8, 2004, the Rocky Mountain Institute ("RMI") filed a Motion to Intervene. HECO and the Consumer Advocate filed memoranda in opposition to RMI's Motion to Intervene. On January 24, 2005, RMI filed a response and on January 31, 2005, HECO responded to RMI's response.

On January 19, 2005, the Department of the Navy on behalf of the Department of Defense ("DOD") filed a motion to intervene, and on January 28, 2005, HECO notified the Commission that it did not oppose the granting of intervenor status to the DOD.

On January 24, 2005, Joseph Speroni and Life of the Land ("LOL") filed motions to participate and to intervene, respectively. On January 31, 2005, HECO filed its opposition to Joseph Speroni's motion to participate. On February 2, 2005 HECO filed its opposition to LOL's motion. On February 10, 2005, Joseph Speroni responded to HECO's opposition to his motion.

On January 24, 2005, the County of Maui ("COM") filed a motion for extension of time to intervene. On February 14, 2005, COM filed a motion for participation without intervention. On February 23, 2005, HECO submitted its opposition to the COM's motion.

By Order No. 21698 ("Order No. 21698"), issued March 16, 2005, in Docket Nos. 04-0113 and 05-0069, the Commission: (1) separated HECO's requests for approval and/or modification of demand-side and load management programs and recovery of program costs and DSM utility incentives (collectively referred to as the "Proposed DSM Programs") from the Rate

Case Docket, and opened this proceeding (the “Energy Efficiency Docket” or “EE DSM Docket”) in which to consider these matters, and (2) determined the parties and participants for the Rate Case Docket and the newly formed Energy Efficiency Docket to address and examine the Proposed DSM Programs. The Commission denied the motions to intervene by RMI and Life of the Land, and the motions to participate by COM and Joseph Speroni, in the Rate Case Docket, but allowed RMI and Life of the Land to intervene in the Energy Efficiency Docket, and allowed the COM to participate in the Energy Efficiency Docket.

Part of the requested increase arose out of the need to recover revenues being provided by the IRP Clause (to cover the costs of existing energy efficiency DSM programs, including lost margins and shareholder incentives) through base rates, and to recover the incremental costs of HECO’s proposed enhanced energy efficiency DSM programs, proposed RCEA Program, and two approved load management DSM programs. Order No. 21698, however, separated HECO’s requests for approval and/or modification of its existing and proposed DSM programs from the rate case proceeding into the EE DSM Docket, Docket No. 05-0069. As a result, an estimated \$29.2 million in DSM program costs related to both the enhanced DSM programs and to the existing DSM programs was removed from the rate increase request in rebuttal testimony, based on the understanding that DSM program costs for existing DSM programs that are currently recovered through the IRP Clause would continue to be recovered through the clause, and that there would be a mechanism to recover costs related to the new DSM programs that result from Docket No. 05-0069.⁵

⁵ Order 21698 also stated that “HECO may temporarily continue, in the manner currently employed, its existing two (2) residential DSM programs . . . and three (3) C&I DSM programs . . .” HECO currently recovers DSM program base labor costs through base rates and incremental DSM program costs through the DSM component of the IRP clause. Therefore, in its rebuttal revenue requirements, HECO continued to include the DSM program base labor costs in base rates, in order to continue to recover these costs in the manner currently employed. See response to CA-RIR-63.

Energy Efficiency Docket

As noted above, by Order No. 21698, issued March 16, 2005, the Commission opened the Energy Efficiency Docket, separating HECO's requests for approval and/or modification of its energy efficiency and load management DSM programs and recovery of such program costs and DSM utility incentives from HECO's 2005 test year rate case, Docket No. 04-0113. Order No. 21698 also granted the Motions to Intervene for the DOD, RMI, and LOL, and the COM's Motion to Participate, in the Energy Efficiency Docket.

By Order No. 21749, filed April 14, 2005, the Commission granted the Motions to Intervene for the Hawaii Solar Energy Association ("HSEA") and Hawaii Renewable Energy Alliance ("HREA") in the Energy Efficiency Docket.

By Order No. 21861, filed June 7, 2005, the Commission made Hawaii Electric Light Company, Inc. ("HELCO"), Maui Electric Company, Limited ("MECO"), Kauai Island Utility Cooperative ("KIUC") and The Gas Company ("TGC") parties to the Energy Efficiency Docket, but limited their participation solely to the issues dealing with statewide energy policies.

By Order No. 21957, filed August 3, 2005, the Commission dismissed as untimely the Motion to Participate or Intervene for the County of Kauai ("COK"), and the Motion to Intervene for Honolulu Seawater Air Conditioning, LLC in the Energy Efficiency Docket.

On August 11, 2005, the COK filed a Motion for Reconsideration or Enlargement of Time requesting that the Commission reconsider its denial of intervention by the COK in the Energy Efficiency Docket. By Order No. 22029, filed September 14, 2005, the Commission

The portion of DSM program costs in base rates represents the base labor expense for HECO employees involved in DSM program implementation that are already in base rates, plus the direct labor and certain non-labor costs associated with its two approved load management DSM programs that were to be included in base rates in the "next" rate case. The total amount of DSM program expenses included in base rates was \$1,030,000. See Docket No. 04-0113, HECO RT-10 at 2-3, 17-20; HECO-R-1003.

made COK a participant to the Energy Efficiency Docket, but limited its participation solely to the issues dealing with statewide energy policies.

The parties and participants were able to agree on a schedule, and all but one of the issues. The Companies submitted their form of Prehearing Order, and the other parties and participants submitted their form of Prehearing Order, on October 7, 2005.

Under the agreed upon schedule, HECO informally provided to the parties/participants its Interim DSM Proposals by October 11, 2005. The parties/participants provided informal comments to HECO on its Interim DSM Proposals by November 18, 2005. HECO's Interim DSM Proposals included its proposed DSM initiatives pending the resolution of the Energy Efficiency Docket, such as modifications to its existing energy efficiency programs (e.g., changes in customer incentive levels and program budgets, modifications to customer payback period) and/or new DSM programs.

A Technical Consultant Meeting was held on November 2, 2005. The intent of the Technical Consultant Meeting was to informally discuss issues such as statewide energy policy, HECO's Interim DSM Proposals, DSM program design and incentive mechanisms, and recent developments in DSM program regulation and implementation.

Under the schedule agreed upon by the parties/participants, HECO was allowed to request approval for the implementation of the Interim DSM Proposals on an interim basis until a final decision and order is rendered.⁶ On December 5, 2005, HECO filed the proposed

⁶ The Prehearing Order explained that HECO's Interim DSM Proposals "will be its proposed DSM initiatives pending the resolution of the Energy Efficiency Docket, such as modifications to its existing energy efficiency programs (e.g., changes in customer incentive levels and program budgets, modifications to customer payback period) and/or new DSM programs (e.g., CFLs for the residential sector). For the Interim DSM Proposals, HECO will request Commission approval for their implementation on an interim basis until a final decision and order is rendered by the Commission in the subject proceeding. The Interim DSM Proposals are being proposed at this time to help HECO address its reserve capacity margins shortfall situation."

modifications to its existing energy efficiency DSM programs, and also requested approval of a new interim DSM program (collectively referred to as HECO's "Interim DSM Proposals").⁷

The Interim DSM Proposals included modifications to HECO's existing energy efficiency DSM programs, and approval of a new interim DSM program. The proposed program modifications were to HECO's CIEE, CICR and CINC Programs. The modifications to the existing commercial and industrial ("C&I") programs included increasing CIEE Program customer incentive levels to provide approximately 25% of the incremental cost of the more efficient alternative measures. Since the same customer incentives also would apply to the installation of these measures under the CINC Program, HECO also proposed to modify the CINC Program. The modification to the existing CICR Program consisted of eliminating the 2-year payback requirement.

The proposed new DSM program was the Interim Energy Solutions for the Home Program ("Interim E\$H"). HECO expected the Interim E\$H Program to distribute approximately 180,000 compact fluorescent lamps ("CFLs") to residential customers. The Interim E\$H Program is a subcomponent of HECO's proposed full scale Energy Solutions for the Home ("ESH") Program, which is being proposed as part of the portfolio of DSM energy efficiency programs in the Energy Efficiency Docket.

HECO requested lost margins and shareholder incentives for the proposed modifications to its existing DSM programs, but not for its proposed Interim E\$H Program, which was a new program.⁸

⁷ HECO submitted Excel spreadsheet files associated with the proposals on December 7, 2005.

⁸ In the interest of simplifying any potential issues and obtaining the other parties/participants' support for HECO's Interim DSM Proposals, HECO stated that it would forego requesting lost margins and shareholder incentives for its proposed Interim E\$H Program.

On January 9, 2006, RMI filed comments on HECO's Interim DSM Proposals. On January 10, 2006, the Consumer Advocate, DOD, HSEA and HREA filed comments on HECO's Interim DSM Proposals.⁹ On January 31, 2006, HECO responded to the comments.

By Order No. 22251, issued January 31, 2006, the Commission approved the proposed Prehearing Order submitted by HECO on October 7, 2005.

On March 15, 2006, the Commission provided the parties/participants with a copy of a report, dated March 3, 2006, entitled EPA Review of HECO Interim Demand-Side Management Proposals (Docket No. 05-0069) ("EPA Interim Report"), submitted to the Commission by the U. S. Environmental Protection Agency ("EPA"), the Commission's consultant to the proceeding, on HECO's Interim DSM Proposals. On March 28, 2006, HECO filed a response to the EPA Report. The EPA Interim Report provided comments that mainly addressed DSM program design issues, including aspects such as eligible measures, energy and demand savings estimates, program marketing and delivery mechanisms, and program budget assumptions. In its Conclusions and Recommendations, the EPA recommended that the Commission approve HECO's Interim DSM Proposals.

On April 4, 2006, April 26, 2006 and May 11, 2006, the parties/participants held settlement discussion meetings in an attempt to reach agreement or partial agreement on the issues for Commission review and approval, which would limit the issues that needed to be addressed in the FSOPs.

On April 26, 2006, the Commission issued Interim Decision and Order No. 22420 ("Interim D&O 22420"). Interim D&O 22420 granted approval for HECO to implement its Interim DSM Proposals, directed HECO to respond to questions from the Consumer Advocate

⁹ The Consumer Advocate, RMI and HSEA supported approval of HECO's Interim DSM Proposals. HREA stated that it was "basically neutral regarding the merits of HECO's Proposed Interim DSM Programs."

and Environmental Protection Agency on HECO's Interim DSM Proposals, and ordered the discontinuation of the recovery of lost margins and shareholder incentives within thirty days of the date of the decision. In Interim D&O 22420, the Commission ordered that:

- (1) HECO may implement its Interim DSM Proposals, on an interim basis, until the Commission issues a final decision in this docket;
- (2) HECO provide the Commission and the Consumer Advocate with notice of any modifications made to the incentive levels for the Interim Energy Solutions for the Home ("E\$H") Program within 30 days of such modification;
- (3) HECO provide the additional information requested by the Consumer Advocate and the EPA in their respective responses to HECO's Interim DSM Proposals;
- (4) HECO's request to extend its recovery of lost margins and shareholder incentives to the interim enhancements to its existing energy efficiency DSM programs, in effect, was denied; and
- (5) HECO's recovery of lost gross margins and shareholder incentives for its DSM programs must be discontinued within thirty days of the filing of this Interim D&O, until further order by the Commission.

On May 15, 2006, HECO filed a Motion for Partial Reconsideration of Interim Decision and Order No. 22420. The Commission granted HECO's request for an extension of time in which to file the motion¹⁰, and granted HECO's request to schedule a hearing on the motion during the hearings in this docket.¹¹ Oral arguments on the motion were held on August 28, 2006. By Order No. 22921, issued October 4, 2006, the Commission denied the motion.

On May 25, 2006, HECO filed a tariff adjustment to its Integrated Resource Planning Cost Recovery Provision, Commercial and Residential DSM Adjustments, to discontinue, in accordance with Interim Decision and Order No. 22420, the recovery of lost margins and shareholder incentives.

¹⁰ Order No. 22468, issued May 16, 2006.

¹¹ Letter dated June 13, 2006.

On June 1, 2006, Final Statements of Position (“FSOP”) were filed by HECO, the Consumer Advocate, the DOD, KIUC, RMI, HREA, HSEA, LOL, and COM.

On July 26, 2006, the Commission issued the EPA’s report entitled EPA’s Comments on Docket No. 05-0069, For the State of Hawaii Public Utilities Commission. On August 22, 2006, responses to the EPA’s July 26, 2006 report were filed by HECO, the Consumer Advocate, DOD, KIUC, COK, and HREA. On August 25, 2006, the Commission issued the EPA’s response to the August 22, 2006 responses to the EPA’s report.

On August 24, 2006, the Commission held a prehearing conference. On August 25, 2006, the Commission issued Prehearing Order No. 22803, which among other things, set forth the agreements reached and actions taken at the prehearing conference and set forth the terms that would control the hearing.

The hearings in this docket, which utilized a panel format and were moderated by Scott Hempling, were held from August 28 through September 1, 2006.

Seawater Air Conditioning Proposal

On August 31, 2006, as part of the panel hearings in this docket, HREA Hearing Exhibit 2 was admitted into the record in this docket, which described various aspects of a proposed Seawater Air Conditioning (“SWAC”) district cooling system. On September 8, 2006, in accordance with the procedural schedule, HECO submitted Information Requests (“IRs”) regarding the HREA Hearing Exhibit 2 and the additional information that was provided by HREA to all parties via an email dated August 30, 2006. On September 19, 2006, the Commission granted HREA’s request to enlarge the time for it to respond to IRs to September 22, 2006, and the time for all parties to submit their position statements on Hearing Exhibit 2 to October 6, 2006. On September 29, 2006, HREA filed Errata Sheets Regarding Post-Hearing

Information Requests from Life of the Land, HECO/MECO/HELCO, and the Consumer Advocate on HREA Hearing Exhibit No. 2, filed on September 22, 2006. On October 3, 2006 a request for a Protective Order was filed with the Commission.

On October 6, 2006, (1) HECO filed its Statement of Position on HREA's Seawater Air Conditioning Project, (2) the Consumer Advocate filed its Comments on HREA's Sea Water Air Conditioning Proposal, (3) HREA filed its Supplemental Position Statement In Support Of HREA Hearing Exhibit No. 2, (4) LOL filed its Amended Final Statement of Position, and (5) the Commission issued Protective Order No. 22929.

On October 10, 2006, HREA filed its Supplemental Response to Post-Hearing Information Requests from LOL, HECO, and the Consumer Advocate on HREA Hearing Exhibit No. 2.

EXHIBIT "B"

HAWAIIAN ELECTRIC COMPANY, INC.

ROBERT A. ALM

EDUCATIONAL BACKGROUND AND EXPERIENCE

Business Address:	Hawaiian Electric Company, Inc. (HECO) 900 Richards Street Honolulu, HI 96813	
Position:	Senior Vice President Public Affairs	
Years of Service:	4	
Education:	University of Hawaii at Manoa BA with Distinction in Political Science (1973) University of Iowa, College of Law Juris Doctor with Distinction (1975)	
Previous Positions:	1995-2001	First Hawaiian Bank Executive Vice President & Manager Financial Management Group
	1993-1994	First Hawaiian Bank Vice President & Trust Officer Trust and Investments Division
	1987-1993	State of Hawaii, Department of Commerce and Consumer Affairs Director
	1984-1986	State of Hawaii, Department of Commerce and Consumer Affairs Deputy Director
	1982-1984	State of Hawaii, Department of Commerce and Consumer Affairs Senior Hearings Officer

1980-1982	Office of Senator Daniel K. Inouye in Washington, D.C. Deputy Administrative Assistant
1979-1980	Office of Senator Daniel K. Inouye in Washington, D.C. Legislative Assistant
1977-1979	University of Hawaii at Manoa Legal Research Associate Pacific Urban Studies & Planning Program
1977	State Senator Stanley Hara Administrative Assistant
1976-1979	Private Practice

Professional Qualifications:

Court Admissions:	Supreme Court of Hawaii (1976) United States District Court of the District of Hawaii (1976) United States Supreme Court (1981)
Memberships:	American Bar Association Hawaii State Bar Association

Honors:

Freedom of Information Award, Society of Professional Journalists (1989)

Hawaii Public Administration Award, American Society for Public Administration,
Hawaii Chapter (1992)

Honorary Ali'i, Royal Order of Kamehameha I (1993)

Outstanding Volunteer Fund Raiser Award 2000, National Society of Fund Raising
Executives (NSFRE) (2000)

Volunteer of the Year Award 2000, Alexis de Tocqueville Society of Honolulu (2000)

Community Service:

Hawaii Community Foundation – Board of Governors, Chair

Helping Hands Hawaii – Board of Directors, Chair

Hawaii Public Television Foundation – Board of Directors, Treasurer

Boys and Girls Club of Hawaii – Board of Directors, Past President

Hawaii Institute for Public Affairs (HIPA) – Board of Directors

Catholic Charities Hawaii – Board of Directors

Sutter Health Pacific – Board of Directors

Hawaii Nature Center – Board of Directors

Straub Foundation – Board of Directors

Disciplinary Board of the Hawaii Supreme Court – Hearing Committee Member

Judicial Performance Committee – Member

Keith Block

92-1211 Uahanai Street

Kapolei, Hi. 96707

(808) 543-4792

Email: keith.block@heco.com

EXPERIENCE:

Director Customer Efficiency Programs

June 2006 – Present

Hawaiian Electric Company, Inc., Honolulu, Hawaii

Program Manager

June 1996 – June 2006

Hawaiian Electric Company, Inc., Honolulu, Hawaii

Demand Side Management Analyst

March 1993 - June 1996

Hawaiian Electric Company, Inc. Honolulu, Hawaii

Program Manager

December 1988 - March 1993

US Navy Fleet Area Control and Surveillance Facility, San Diego, California

MECHANICAL ENGINEER

July 1985 - December 1988

Naval Undersea Warfare Center, San Diego, California

EDUCATION:

SAN DIEGO STATE UNIVERSITY, San Diego, California

Post-Graduate courses, Mechanical Engineering with emphasis in design and design optimization, 1991 - 1992, GPA was 3.2 on a 4.0 scale

SAN DIEGO STATE UNIVERSITY, San Diego, California

B.S. in Mechanical Engineering, June 1985

Alvin J. Goto

EDUCATIONAL BACKGROUND AND EXPERIENCE

Business Address: Hawaiian Electric Company, Inc.
P.O. Box 2750
Honolulu, HI 96840

Position: Senior Planning Engineer
Generation Planning Division
Power Supply Services Department

Education: Bachelor of Science in Electrical Engineering
University of Hawaii – Manoa

Experience: HAWAIIAN ELECTRIC COMPANY, INC.

2003 to Present
Senior Planning Engineer
Generation Planning Division

1999 - 2003
Planning Engineer & Acting Senior Planning Engineer
Integrated Resource Planning & Generation Planning Divisions

1995 – 1999
Capital Budgets Analyst
Financial Services Department

1993 – 1995
Systems Analyst
Information Services Department

DATAHOUSE, Inc. – Honolulu, Hawaii
1991 -1993
Management Analyst

MOTOROLA, Inc. – Phoenix, Arizona
1987 -1990
Electrical Engineer

Previous Testimony: HELCO Petition for Land Use District Boundary Amendment
Keahole Generating Station and Airport Substation
State of Hawaii Land Use Commission Docket No. A03-743

HAWAIIAN ELECTRIC COMPANY, INC.

GARY A. HASHIRO

EDUCATIONAL BACKGROUND AND EXPERIENCE

BUSINESS ADDRESS: Hawaiian Electric Company, Inc.
820 Ward Avenue
Honolulu, Hawaii 96814

POSITION: Director
Integrated Resource Planning Division
(1997 – present)

EDUCATION: University of Hawaii, Manoa
Master of Business Administration, 1992

University of Hawaii, Manoa
Bachelor of Science – Electrical Engineering, 1985

REGISTRATION: Registered Professional Engineer
State of Hawaii, 1993

EXPERIENCE: Senior Planning Engineer
Power Supply Planning and Engineering Department
Hawaiian Electric Company, Inc.
(1995-1997)

Electric Engineer I
Integrated Resource Planning Department
Hawaiian Electric Company, Inc.
(1993-1995)

Designer II
Generation Planning Department
Hawaiian Electric Company, Inc.
(1992-1993)

Various Engineering Positions
GTE Hawaiian Tel
(1985-1992)

ALAN K.C. HEE

EDUCATIONAL BACKGROUND AND EXPERIENCE

BUSINESS
ADDRESS: Hawaiian Electric Company, Inc.
220 South King Street
Honolulu, Hawaii 96813

POSITION: Manager, Energy Services Department

YEARS OF SERVICE: 20 Years

EDUCATION: MBA, University of Hawaii, 1982
BS, Civil Engineering
Cornell University, NY, 1974

OTHER QUALIFICATIONS: Registered Professional Engineer, Hawaii
Civil Engineering Branch

OTHER
EXPERIENCE: Director, Forecasts Division
Energy Services Department, 1995-2004

Director, Forecasting Division
Rate and Regulatory Affairs Dept., 1991-1995

Planning Analyst, Forecasting Division
Rate and Regulatory Affairs Dept., 1986-1991

Operations Engineer
GASCO, Inc., Hilo 1982-1986

Peace Corps Volunteer
Fiji Islands, 1974-1976

Wayne J. Oliver

Merrimack Energy
727 Lafayette Rd., PO Box 2955
Seabrook, NH 03874
(603) 474-3385
waynejoliver@aol.com

A Management Consultant with a diverse background in the energy field. Areas of expertise include strategic planning, asset valuation, power project evaluation and power procurement, energy supply/demand forecasting and planning, competitive fuels analysis, risk management, rate analysis and expert testimony, regional energy market analysis, and project economic and financial analysis. Focus on electric, gas and renewable resource industries

PROFESSIONAL EMPLOYMENT

2000-present	Merrimack Energy Group, Principal
1988-2000	Reed Consulting Group/Navigant Consulting, Inc. Managing Director/Senior Vice President/Founder of Reed
1999	Babson College, Adjunct Professor, Finance Department
1984-1988	R.J. Rudden Associates, Inc. Senior Consultant
1983-1984	Massachusetts Executive Office of Energy Resources Consultant
1981-1983	Algonquin Gas Transmission Company Corporate Planner
1980-1981	Massachusetts Executive Office of Energy Resources -- Analysis and Regulations Program Assistant Director
1978-1980	New England Regional Commission -- Energy Policy Analysis Program Coordinator/Senior Economist

PROFESSIONAL EXPERIENCE

Utility Restructuring

Managed several projects for electric and gas utilities on industry restructuring and unbundling initiatives.

Presented seminars to utilities, trade organizations and conferences on electric utility restructuring strategies and implementation.

Advised senior management of electric utilities on evaluating and developing strategies for enhancing the value of the utility's assets. Also assisted several utilities in the development of GENCO strategies.

Asset Valuation

Conducted due diligence analysis for several banks regarding the potential financing for merchant power projects, gas storage projects, and gas pipeline assets.

Conducted asset valuation analysis for utilities and power generators interested in acquiring power generation assets. Analysis included valuation of gas-fired combined cycle and CTs, coal projects, hydroelectric facilities, power contracts, pipeline capacity commitments, and electric transmission assets.

Renewable Resources

Developed renewable resource RFPs and assisted in bid evaluation for Hydro-Quebec Distribution (1000 MW Wind and 100 MW Biomass), Massachusetts Technology Collaborative, Portland General Electric (wind, geothermal, and biomass proposals), Central Power & Light Company (wind only RFP), Public Service Company of Oklahoma, Southwestern Electric Power Company, West Texas Utilities, Hawaiian Electric Company, and Northern States Power (Technical Advisor).

Chaired two major conferences on green pricing initiatives and renewable resource development

Competitive Energy Pricing

Negotiated several special contracts with unique pricing arrangements between utilities and customers.

Developed a market price evaluation methodology and pricing process for a large electric utility for wholesale and retail marketing initiatives.

Developed approach for resource procurement in a competitive electric market based on portfolio design, which incorporates short and long term resources, flexible contract provisions and option pricing concepts.

Risk Management

Conducted seminars for utilities on the use of risk management techniques and financial derivatives to hedge risks, including the use of options, futures and swaps. Applied financial option techniques in the development of physical option arrangements.

Developed a risk management strategy for a major electric utility to hedge its fuel and power trading price risk.

Fuel Supply Acquisition Strategy and Procurement

Assisted several LDCs and electric utilities with gas procurement activities including direct purchases from suppliers. Activities included development of a supply portfolio plan, design of an RFP for gas supplies, assessment of the need for price and nomination flexibility for contracting, development of the evaluation criteria, and review and evaluation of proposals submitted. Participated in RFP's for both U.S. and Canadian supplies. Responsible for the evaluation of over 100 proposals for gas supply.

Assisted independent power producers and cogenerators with development of fuel purchase strategies, and implementation of the strategy including identifying producers, suggesting a course of action and negotiation of the fuel purchase contracts and transportation pricing terms and conditions.

Completed gas procurement strategies and portfolio designs for several electric utilities. Responsibilities included evaluating pipeline and storage options, developing a procurement strategy, and recommending a course of action. The projects involved integrating the production cost and operations of the generation units with gas supply and transportation contracting considerations to develop a least cost strategy.

Power Procurement/Competitive Bidding

Assisted a number of utilities in the development and implementation of competitive bidding processes and associated RFPs for long-term supply-side resources, renewable resources, option contracts, distributed resources and demand-side resources. Evaluated hundreds of power supply proposals for a wide range of power generation technology options.

Directed a major study for a large electric utility involving the development of a viability methodology for assessing non-utility generation projects. The approach involved the use of Critical Path methodology to assess project status and probability of success

Third-party Evaluator or Independent Monitor for a number of power solicitation or competitive bidding processes including: Delmarva Power, Baltimore Gas and Electric, Duke Power, Hydro-Quebec (Baseload and Dispatchable Supply, Wind, Biomass, Cogeneration, and several Short-Term Call for Tenders), Portland General Electric, BC Hydro, Central and SouthWest Services (five separate RFPs), Commonwealth Edison, PacifiCorp, Public Service Company of Oklahoma and Southwestern Electric Power Company RFPs for power supplies. Have had the opportunity to review and evaluate hundreds of power supply proposals representing numerous technologies and contract structures.

Project Manager responsible for designing and developing supply side RFPs for several electric utilities including Boston Edison, Central and South West Services, Inc., Commonwealth Edison Company, Duke Power, Carolina Power & Light, and Hydro-Quebec.

Assisted in the preparation of power supply bids on behalf of utility and non-utility clients for a number of utility solicitations.

Assisted several utilities with the design and development of an evaluation methodology and development of contract terms for RFP's for Power Options. Managed the development of an options pricing model to evaluate bids received.

Energy Market and Economic Policy Studies

Conducted a number of studies for utility and non-utility clients on the market for power in various regions of the US and in Canada.

Directed merchant power study for an Independent Power Producer assessing the market price of power for the uncommitted capacity from the project as a form of merchant power. Study components included analysis of the competitive market price in both the short and long term, definition of need for capacity and energy, risk assessment of key market factors, and project dispatch analysis.

Assisted in the completion of a gas market study for a proposed natural gas pipeline project assessing the potential of the Northeast market for Canadian gas.

Conducted several market studies and power price forecasts in support of due diligence efforts for acquisition of power generation assets.

Strategic Planning and Analysis

Assisted in a strategic planning study for a major international coal company with the goal of developing strategies to increase market share within the electric power industry.

Completed a strategic planning study for a major electric utility assessing the opportunities for the company in the changing natural gas market, including fuel purchasing strategies, and gas fired cogeneration and combined cycle opportunities.

Prepared economic forecasts and strategic plans for a gas transmission company.

Conducted several seminars for senior management of pipeline companies and electric utilities on opportunities and challenges for gas use in electric generating facilities.

Assisted several local gas distribution companies with development and implementation of gas supply/transportation procurement strategies in response to FERC Order No. 636.

Forecasting and Modeling

Managed the development of a monthly demand forecasting model for each rate class for LDCs using both econometric and end-use modeling techniques as part of its integrated resource planning process.

Developed integrated planning and forecasting system for a small electric utility. The system was comprised of production cost, generation planning, cost of service, demand forecasting and rate design modules.

Assisted in econometric research study of the capital structure of a large combination utility.

Developed an electric rate forecasting model integrating production cost projections with a cost-of-service model for a large industrial client for purposes of projecting the electricity costs for the utility over a five-year time horizon.

Managed a number of projects and utilized several production cost and generation expansion models for evaluation of power supply proposals and resource options.

Cost of Service/Rate Design

Submitted testimony before the Federal Energy Regulatory Commission on pipeline rate and cost allocation issues in Penn York Energy Corporation and Great Lakes Gas Transmission Limited Partnership rate cases.

Replicated and critiqued several electric and gas cost of service models for rate case intervention dealing with cost allocation, revenue requirements and rate design issues.

Financial Analysis

Assisted several utilities in the financial analysis of distributed resources for the purposes of establishing a DG business unit.

Assisted in the preparation of a financial and economic feasibility study of a power generation project for a consortium of banks.

Prepared several financial prefeasibility studies of proposed power generation projects for utilities, independent power producers and industrials.

Directed several studies on power needs and competitive costs of power supply options for large independent power producers for project applications before regulatory authorities.

EDUCATION

Northeastern University, Completed Doctoral Course work, Economics, 1977

Northeastern University, M.A., 1976

Assumption College, B.A., 1973

OTHER

Past Chairman, Massachusetts Natural Gas Task Force.

Adjunct Professor, Department of Finance, Babson College; Courses taught include Risk Management (MBA Program), Options and Futures

Instructor/Lecturer, Department of Economics, Northeastern University; Statistics, Energy Economics, Forecasting Techniques, International Economics.

EMPLOYMENT HISTORY

- Principal and Founder, Summit Blue Consulting, Boulder, CO, 2000-present
- Vice President, Economics and Analytics, Hagler Bailly Consulting, Inc., Boulder, CO, 1995-2000
- Principal, A.T. Kearney/EDS Management Consultants, Boulder, CO, 1994-1995
- Sr. Vice President, XENERGY Inc., Boulder, CO, 1992-1994
- Sr. Vice President, RCG/Hagler Bailly, Inc., Boulder, CO, 1987-1991
- Cofounder and Sr. Vice President, Energy and Resource Consultants, Inc., Boulder, CO, 1979-1987
- Economist, Energy and Environmental Analysis, Inc., Boulder, CO, 1977-1979

EDUCATION

- University of Colorado, PhD, Economics, 1980
- University of Colorado, MS, Economics, 1974
- Arizona State University, BS, Economics, 1973

PROFESSIONAL EXPERIENCE

In his 20 years of consulting experience, Dr. Violette has conducted assignments for clients across North America related to the design, implementation and evaluation of energy efficiency and energy services products. He also served as the co-chair for retail settlements subcommittee of the Ontario Market Design Committee (MDC).

Internationally, Dr. Violette has conducted energy strategy projects for the International Energy Agency in Paris and for Eastern European countries. He also helped develop energy strategies for industry in Pakistan. Dr. Violette has published over 40 papers in journals and books, made over 60 contributions to published conference proceedings, and contributed to reports to the U.S. Congress prepared by the National Acid Precipitation Assessment Panel (NAPAP) and by the National Commission on Air Quality (NCAQ).

SELECTED ASSIGNMENTS

- Currently evaluating the price-responsive load programs for the three investor-owned utilities in California as part of a collaborative process that includes the California Energy Commission and the California Public Utilities Commission. This includes making a determination regarding whether progress towards Commission set goals is being made.
- Served as a task manager for a project for the California PUC's verification of claims by the four California gas and electric utilities for shareholder incentives over four-year period.

- Evaluating NYSERDA's peak demand programs (both permanent reductions and callable reductions via the ISO) and their peak management enabling technologies programs in a multi-year project for NYSERDA. These programs cover five investor owned utilities in New York.
- Conducted an independent evaluation of market transformation accomplishments through Northwest Energy Efficiency Alliance (Alliance) efforts since 1997. This retrospective evaluation effort was initiated by an ad hoc committee appointed by the Alliance board of directors for the primary purpose of determining whether the Alliance has transformed enough markets to justify the costs of the Alliance.
- Co-chaired the 2003 Pricing in Electricity Markets Conference hosted by the Association of Energy Services Professionals International and the Electric Power Research Institute (EPRI). The focus of the conference was "what is working now and what is needed for the future?" Presented a paper at the conference entitled "Pricing in Retail Markets — Innovation and Resource Allocation."
- Evaluated several innovative demand response and pricing programs for Sacramento Municipal Utility District targeted at smaller and mid-market customers as part of a multi-year study.
- Evaluating (along with Quantum Consulting) all of California's investor owned utilities innovative rates, pricing and demand response initiatives in a multi-year research effort.
- Assessed the strategic implications of Demand Response for a distribution utility where the ISO New England is attempting to promote an aggressive program. The full range of programs were examined with NSTAR taking either a lead role in the DR program, a facilitation role, or a relatively hands off approach. A key component of the effort was to calculate the benefits to the distribution company from Demand Response programs.
- Conducted an investigation into how electric cooperatives are utilizing strategic alliances to reduce costs, improve their operations, and better serve their members. The final report, published by the National Rural Electric Cooperative Association in January 2004, presents a process guide for alliance formation and management that can serve as a tool to help cooperatives plan and execute alliance agreements.
- Designed peak load curtailment programs for Louisville Gas & Electric Company and developed evaluation plans for a portfolio of energy efficiency programs.
- Led a number of projects for the Electric Power Research Institute, including developing and conducting training courses on performance measurement, data collection for decision making, authoring a handbook for assessing the performance of energy services programs.
- Led a three-year in-field metering and monitoring for a consortium of seven gas utilities in New England estimating the impacts of energy efficiency equipment in the residential and commercial sectors. Led an effort for a consortium of five New England utilities to examine the influence of utility actions on regional energy use and the markets for energy products.

- Co-authored a “White Paper” for the National Association of Regulatory Utility Commissioners on regulatory issues in the evaluation of energy services programs.
- Managed the analytic tasks of an EPRI tailored collaborative project examining the integration of information from short-term metering of technologies with longer term billing analyses of customers. The participating utilities were Northern States Power and Madison Gas and Electric Company.
- Performed a number of assignments for utilities assessing their customer information systems and how they can be used for performance measurement and market research. These efforts often included the development of strategies for the collection of customer data and market intelligence.
- Designed and conducted training programs and workshops on market and resource planning, as well as performance measurement for a number of utilities. These seminars and workshops have been conducted for professionals at San Diego Gas and Electric Company, Ontario Hydro, Bonneville Power Administration, Hydro Quebec, Public Service Electric & Gas, Arizona Public Service Company, and other utilities. Dr. Violette has also produced and conducted six training seminars on behalf of the Electric Power Research Institute.
- Developed environment strategies, including environmental externality valuation and integration of externalities in utility plans, as well as a number of assignments related to Clean Air Act compliance, including emissions trading, conservation as a compliance strategy, and the evaluation of compliance plans.

CONFERENCE PROCEEDINGS

“Portfolio Analysis of Demand-Side Resources (DSR) – Role in Planning—“ presented at the Eighth Annual National Symposium On Market Transformation, Washington DC, March 1st-2nd, 2004

“Making Electricity Markets Work for Everyone” presented at the 2004 Center for Neighborhood Technology and The Community Energy Cooperative Forum, Chicago, IL, February 27, 2004.

“The Natural Gas Crisis - Implications for EE & DR Cost-Effectiveness Analysis” presented at the 14th National Energy Services Conference and Exposition for the Association of Energy Professionals, New Orleans, December 10-12, 2003

“Mass-Market Demand Management Offerings: Evaluation Methods Assessment and Results,” presented at the IEPEC 2003

“Pricing in Retail Markets — Innovation and Resource Allocation,” presented at the 2003 Pricing in Electricity Markets Conference for the Association of Energy Professionals, in conjunction with EPRI, Chicago, IL, May 14-15, 2003.

“Cost Effective Evaluation of Mass Market Load Management Programs” In *Proceedings of the 2001 International Energy Program Evaluation Conference*, Salt Lake City, UT, NTIS Pubs., Washington, DC, July 2001.

“Opportunities for Load Management in Mass Markets,” EEI Retail Energy Services Conference, Chicago, Ill., March 29, 2001.

“Innovative Sales and Pricing Structures — Riding the Waves!” presented at EMACS '98: The 1998 Energy Marketing and Customer Service Conference, The Westin Horton Plaza, San Diego, California, October 15, 1998.

“Convergence of Markets Opportunities and Risks,” presented at the American Gas Association’s (AGA) Workshop on Unbundling and Affiliate Transactions, Ritz-Carlton Hotel, Arlington, VA, July 9, 1998.

“Convergence - reality or hype?” presented at the Electric Utility Consultants conference on Electric Utility Business Environment, Westin Hotel, Denver, CO, June 24, 1998.

“Stranded Cost Recovery — Understanding the Legislation Affecting New Jersey and States around the Country,” presented at the IBC’s Fourth Annual Industry Forum on Developing and Negotiating Strategic Mechanisms for Stranded Cost Recovery, Renaissance Washington DC Hotel, Washington, DC, June 23, 1998.

“Electricity Price Forecasts and the Forward Price Curve for Electricity,” presented at the EPRI 1998 Innovative Approaches to Electricity Pricing Conference, Washington, DC, June 18, 1998.

“The Business Process Challenges of Retail Competition: Organizational Structures Will Change,” Pacific Cost Gas Association’s (PCGA) Deregulation Conference, Portland, OR, May 13, 1998.

“Changing Times: Business Opportunities and Risks in the Gas and Electric Industries.” Presented at the American Gas Association’s (AGA) Marketing and Communications Conference: Betting On Our Customers, Las Vegas, NV, April 27, 1998.

“The Ten Year Perspective: What Actions Need to be Taken Today for Your Firm to be Successful 10 Years From Now?” Presented at *The Fourth Annual Power Industry Forum, Panel Four: Marketing — Heart of the New Power Company*, Infocast, Carlsbad, CA, March 7, 1997.

“North American Energy Measurement & Verification Protocols (NEMVP).” Presented at the AEE Chapter, Budapest, Hungary, November 26, 1996.

“Evaluation of Energy Efficiency Activities: The Keys to Success.” Conference materials presented at the *2nd International DSM & Energy Efficiency Strategies Conference*, Copenhagen, Denmark. November 20-21, 1996.

“An Introduction to the Principles and Applications of Market Research for Electric Power Companies.” In *Infocast Conference Proceedings — Market Intelligence for Utilities: Obtaining and Analyzing Critical Customer and Competitor Data*.” Denver, CO, July 29, 1996.

“Customer Decision Making.” Presentation for *Infocast Conference — The Marketing Institute for the Electric Power Industry*, Atlanta, GA, March 5, 1996.

“Creating Market Opportunities through Energy Services.” Opening Plenary Session, *Proceedings of the 1995 Association of Energy Services Professionals Annual Member Meeting*, Association of Energy Services Professionals Pubs., Boca Raton, FL, December 4-6, 1995.

“Customers’ Speak — What Customers Need from Energy Suppliers.” In *Proceedings of the 1995 Association of Energy Services Professionals Annual Member Meeting*, Association of Energy Services Professionals Pubs., Boca Raton, FL, December 4-6, 1995.

“Assessing Marginal Costs for Competitive Pricing.” In *Proceedings of Conference on Competitive Analysis & Benchmarking for Electric Power Companies*, Center for Business Intelligence Pubs., Burlington, MA, November 1995.

“Performance Measurement Concepts and Framework.” In *The 1995 Performance Measurement Workshop: Measuring the Performance of Utility Products and Services in an Era of Increasing Competitiveness*, Denver, CO, Electric Power Research Institute Pubs., Palo Alto, CA, November 1995.

“Setting a Research Agenda for Assessing Market Transformation and Spillover,” In *Proceedings of the 1995 International Energy Program Evaluation Conference*, Chicago, IL, NTIS Pubs., Washington, DC, #CONF-950817, August 1995, p. 9.

“Evaluation in the Age of Anxiety.” In *Proceedings of the 1995 International Energy Program Evaluation Conference*, Chicago, IL, NTIS Pubs., Washington, DC, #CONF-950817, August 1995, p. 859.

“Data Collection and Information Systems: What We’ve Learned from the DSM Experience.” In *Proceedings: Delivering Customer Value — 7th National Demand-Side Management Conference*; Electric Power Research Institute Pubs., Palo Alto, CA, #EPRI TR-105196, June 1995, p. 25.

“Energy Efficiency Evaluation.” In *Proceedings — IEA Experts Panel Meeting on Evaluation*, Sponsor: International Energy Agency/Organization for Economic Co-operation and Development, Washington, DC, November 1994.

“Evaluation: Issues, Methods, and Direction.” In *Proceedings of Asian Pacific Economic Community (APEC) Inter-Utility Demand Side Management Liaison Group*, Julia Shaver, ed., Oak Ridge National Laboratory, Oak Ridge, TN, October 1994.

“Addressing Uncertainty and the Value of Flexibility in the Second Generation of IRP.” Published in the *Proceedings of American Council for an Energy Efficient Economy — 1994 Summer Workshop*, ACEEE vol. 6, p. 231, August 1994.

“The Treatment of Outliers and Influential Observations in Regression-Based Impact Evaluation.” Published in the *Proceedings of American Council for an Energy Efficient Economy — 1994 Summer Workshop*, ACEEE vol. 8, p. 172, August 1994.

“Addressing Uncertainty and the Value of Flexibility in Utility Planning.” In *Proceedings of the 1994 Integrated Resource Planning Conference*, Electric Utility Consultants, Inc. Pubs., Denver, CO, April 1994, p. 1.

“Discrete Choice Models for Planning and Evaluation of Electric Utility Demand-Side Management Programs,” *Proceedings TIMS/ORSA Joint National Meeting*, Chicago, IL, May 1993.

“Data Quality in Program Tracking Systems: The Impact on Evaluation.” *Proceedings of the 6th National Demand-Side Management Conference*; Electric Power Research Institute Pubs., Palo Alto, CA, #EPRI TR-102021, March 1993.

“Impact Evaluation and Program Tracking Systems.” *Proceedings — 6th National Demand-Side Management Conference: Making a Difference*. Sponsors: Electric Power Research Institute, Edison Electric Institute, and U.S. DOE, Electric Power Research Institute Pubs., Palo Alto, CA, #EPRI TR-102021, March 1993, p. 41.

“Uncertainty in an IRP Process.” *Proceedings of the Integrated Resource Planning Conference*, Sponsor: Electric Utility Consultants, Inc., Denver, CO, March 18-19, 1993, p. 289.

“Estimating the Impacts of DSM Programs for Use in IRPs.” *Conference Proceedings — Long Range Forecasting for Gas Utilities*, New Orleans, LA. Sponsor: American Gas Association, Washington, DC, March 11-13, 1992.

“A Framework for Evaluating Environmental Externalities in Resource Planning — A State Regulatory Perspective.” In *Proceedings of the NARUC National Conference on Environmental Externalities* in Jackson Hole, WY. National Association of Regulatory Utility Commissioners, Washington, DC, October 1990.

“Five Steps through the Clean Air Act — Developing an Acid Rain Compliance Strategy.” In *Proceedings of the 1990 Energy and the Environment Conference*. Sponsor: Electric Utility Consultants, Inc., Denver, CO, September 1990.

“Using Billing Data to Estimate Energy Savings: Specifications of Energy Savings Models, Self-Selection and Free-Riders.” Published in the *Proceedings of American Council for an Energy Efficient Economy (ACEEE) — 1990 Summer Workshop*, ACEEE, Washington, DC, August 1990, Vol. 6, p. 131.

“Evaluation of a New Home Construction Program: Combining Load Research, Billing Data, and Engineering Estimates in a Consolidated Framework.” Published in the *Proceedings of American Council for an Energy Efficient Economy (ACEEE) — 1990 Summer Workshop*, ACEEE, Washington, DC, August 1990, Vol. 6, p. 167.

“Use of End-Use Load Research Data in Statistical/Econometric Evaluations of DSM Programs.” *Proceedings — Conference on End-Use Load Information and its Role in DSM* in Irvine, CA. Sponsor: The Fleming Group, July 1990.

SELECTED PUBLICATIONS

“Strategic Alliances: Partnering to Achieve Cooperative Objectives,” for National Rural Electric Cooperative Association (NRECA), October 2003, #Project01-06

“Retrospective Assessment of the Northwest Energy Efficiency Alliance” for the Northwest Energy Efficiency Alliance, October 2003, #E03-120

“Electricity Pricing Lessons from the Front” White Paper based on AESP/EPRI Pricing Conference, May 2003, #1002223

“An Initial View on Methodologies for Emission Baselines: Energy Efficiency Case Study,” OECD and IEA, June 2000.

“Conventional Pricing Wisdom Not Competitive: Riding Customer-Choice Wave with Innovation Creates Margin, Attracts Customers,” for *Energy Marketing; Forecasting the Future of the Energy Marketplace*, February 1999/Volume 2.1.

“Chapter 16: Implications of Retail Customer Choice for Generation Companies.” In *Customer Choice: Finding Value in Retail Electricity Markets*, Public Utility Reporting (PUR) Press, January 1999.

“Evolving Business Processes for Gas Utilities: The Impacts of Retail Choice,” for the Gas Research Institute, Market Analysis and Information Technology Business Unit, May 1998.

“Retail Choice and Energy Convergence: Implications for Gas Utilities,” *Natural Gas*, Pubs., John Wiley & Sons, Inc., August 1998.

“Viable Business Models for Generation in an Era of Competition and Retail Choice,” Public Utilities Report, Forthcoming, September 1998.

“Evaluation, Verification, and Performance Measurement of Energy Efficiency Programmes.” *International Energy Agency Publication*, Paris, France, Forth Draft, April 25, 1996.

Editor, *Performance Impacts: Evaluation Methods for the Nonresidential Sector*, Electric Power Research Institute Pubs., Palo Alto, CA, EPRI TR-105845, Research Project 3269, December 1995.

Editor, Inaugural Issue of the Energy Services Journal, Lawrence Erlbaum Associates Pubs., Vol. 1, Issue 1, October 1995.

“Chapter 6: Estimating Spillover and Market Transformation.” In *Performance Impacts: Evaluation Methods for the Nonresidential Sector*, Electric Power Research Institute Pubs., Palo Alto, CA, EPRI TR-105845, Research Project 3269, December 1995.

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“A Convergence of Concepts: The Coming Wave of Change Management and Strategic Benchmarking.” President’s Column, *STRATEGIES: A Publication of the Association of Energy Services Professionals*, Spring 1995, p. 9.

“Demand-Side Management at the Crossroads,” *Natural Gas Journal*, Pubs: John Wiley & Sons, Inc., December 1994, pp. 13-18.

“DSM in the Crystal Ball.” President’s Column, *STRATEGIES: A Publication of the Association of Energy Services Professionals*, Fall 1994, p. 7.

Regulating DSM Program Evaluation: Policy and Administrative Issues for Public Utility Commissions. National Association. of Regulatory Utility Commissions, (NARUC), Washington, DC, NTIS Pubs. #ORNL/Sub/95X-SH985C, April 1994.

“Comments on Applying Ratio Estimation Methods.” *Evaluation Exchange*. Synergic Resources Corporation and the International Energy Program Evaluation Conference Pubs., Bala Cynwyd, PA, September/October 1993, Vol. 3, No. 2, p. 3.

“Chapter 4: Value of a Statistical Life in Wrong Death Cases,” *Hedonic Methods in Forensic Economics*, J. Ward Ed., University of Missouri Press Pubs., 1992.

“Setting Evaluation Accuracy Standards: What Will and Will Not Work.” *Evaluation Exchange*. Synergic Resources Corporation and the International Energy Program Evaluation Conference Pubs., Bala Cynwyd, PA, November/December 1992, Vol. 2, No. 6, p. 9.

Approaches for Synthesizing DSM Program Evaluations: The Wisconsin DSM programs Evaluation Database and a Review of Meta-Analysis, Electric Power Research Institute Pubs., Palo Alto, CA, #EPRI, TR-100697s, Vols. 1-3, June 1992.

“Chapter 5: Data Analysis for DSM Program Evaluation,” in the *Handbook to DSM Program Evaluation*, Eric Hirst and John Reed, eds., NTIS Pubs., Washington, DC, # ORNL/CON -336, December 1991.

“Chapter 9: Integrated Resource Planning and the Clean Air Act, in *Energy Efficiency and the Environment: Forging the Link*,” E. Vine, D. Crawley and P. Centolella, eds., ACEEE Series on Energy Conservation and Energy Policy, Pubs: American Council for an Energy-Efficient Economy Pubs., Washington, DC, 1991, pp. 177-188.

Impact Evaluation of Demand-Side Management Programs — Volume 2: Case Studies and Applications, Electric Power Research Institute Pubs., Palo Alto, CA, #EPRI CU-7179 V2, September 1991.

Impact Evaluation of Demand-Side Management Programs — Volume 1: A Guide to Current Practice, Electric Power Research Institute Pubs., Palo Alto, CA, #EPRI CU-7179, VI, February 1991.

Integrated Planning, Evaluation and Cost Recovery Issues for Gas Distribution Utilities. Planning and Analysis Group, American Gas Association Pubs., May 1991.

RECENT TESTIMONY

- Prepared testimony and testified before the New Jersey Board of Public Utilities concerning GPU's Restructuring Petition, Docket No. EO97060396, March 20, 1998. Corresponding report is entitled “Review of GPU's Restructuring Petition, GPU Energy Docket No. EA97060396, February 24, 1998.
- Prepared testimony and testified before the New Jersey Board of Public Utilities concerning GPU Energy Unbundled Rates Petition, Docket No. EO97070458,” January 12, 1998. Corresponding Report is entitled “Review of GPU's Unbundled Rates Petition,” GPU Energy Docket No. EA97060396, December 15, 1997.
- Prepared testimony in the Joint Application of Central Power and Light Company, West Texas Utilities Company and Southwestern Electric Power Company for Approval of Preliminary Integrated Resource Plans and for Related Good Cause Exceptions, before the Public Utility Commission of Texas, Docket No. 16995, January 1997.
- Participated in rate case testimony and support for Central Light and Power Company for the rate case, Docket No. 14965, before the Texas PUC, March 1996.

PROFESSIONAL AFFILIATIONS AND HONORS

- Elected to the Board of the Association of Energy Services Professionals, and also serves as Vice President of the Executive Committee, 2004.
- Served three years as elected President of the AESP, 1994, 1995, and 1996.
- Editor of the inaugural issue of the *Energy Services Journal*, Lawrence Erlbaum publishers, 1995.

- Member of the National Commission on Air Quality Benefits Estimation Panel.
- Member of the editorial board of *Evaluation Exchange*.
- Awarded *Highest Distinction* on both PhD Comprehensive Field Exams, University of Colorado.
- Recipient of University of Colorado Regents Fellowship.
- Graduated *summa cum laude*, Arizona State University, 1973.
- Male Scholar of the Year, Arizona State University, 1973.

Hawaiian Electric Company, Inc.

David G. Waller

EDUCATIONAL BACKGROUND AND EXPERIENCE

Business Address:	Hawaiian Electric Company, Inc. 220 South King Street Honolulu, HI 96813
Position:	Vice President, Customer Solutions
Years of Service:	17 years
Education:	Masters in Business Administration University of Hawaii at Manoa, 1989 B.S. Chemical Engineering Rose Hulman Institute of Technology
Previous Positions:	1998-2004 Manager, Energy Services Department Hawaiian Electric Company, Inc. 1992-1998 Director, Customer Technology Applications Division Hawaiian Electric Company, Inc. 1989-1992 Director, Fuel Resources Hawaiian Electric Company, Inc. Other managerial and technical positions with Pacific Resources, Petro-Canada Exploration Pembina Pipeline, and Amoco Oil Company
Other Qualifications	Register Professional Engineer, Montana Register Professional Engineer, Alberta, Canada

GREGORY A. WIKLER
Vice President
Global Energy Partners, LLC
3569 Mt. Diablo Blvd., Suite 200
Lafayette, CA 94549
Tel: 925-284-3780

QUALIFICATIONS

- Over eighteen years experience as an energy planner and project manager for strategic planning and market evaluation projects for electric utilities
- Substantial knowledge of residential, commercial and industrial energy use practices and the application of end-use technologies
- Recognized expert in energy efficiency planning, program design, program implementation and performance evaluation
- Expertise in technology assessment and market analysis for demand response and distributed generation technologies
- Conducts projects related to energy efficiency measures, demand response programs, building analysis and modeling, and market research related to customer decisionmaking processes
- Areas of expertise include:
 - Integrated resource planning
 - Economic and cost-benefit analysis
 - Market analysis and strategic planning
 - Financial and profitability analysis
 - Technology and market assessments of new products and services
 - Environmental and pollution reduction technology assessments
 - End-use data and engineering analysis
 - Energy audit and facility data collection project management

PROFESSIONAL EXPERIENCE

2000 - present *Vice President*
Global Energy Partners, LLC, Lafayette, California
(An affiliate company of EPRI and DMJM-H&N)

As a Vice President for Global Energy Partners, Mr. Wikler conducts technical, economic and financial assessments related to the electric industry. His expertise addresses such contemporary industry topics such as energy efficiency and DSM program planning, load management program implementation, environmental assessments, electric industry liberalization and privatization, project development and financial assessment, and public/private partnership development. Representative projects include:

- For Hawaiian Electric, on behalf of the three investor-owned utilities of Hawaii, directing an assessment of energy efficiency and demand response resource potential for Hawaii. The assessment is a prelude for integrated resource plans (IRP) that are being developed by each of the utilities per regulatory requirements.
- For the California Measurement and Advisory Council (CALMAC), conducted a summary study of all California energy efficiency program efforts during the 2001 energy crisis. The study drew upon savings and costs reported by the implementing entities (e.g., utilities, agencies, third parties) as part of the measurement and verification protocols.

EXHIBIT "B"

- For the investor-owned utilities of Iowa, developed a comprehensive energy-efficiency resource assessment. The study provided each of the four utilities with a foundation for developing their own tailored energy efficiency plans that both met the spirit of the regulatory rules on energy efficiency and adhere to each company's goals and objectives for

this activity. The project involved developing load profiles for 14 market segments in the residential and commercial sectors so that energy efficiency measures can be appropriately addressed and then calibrating those loads with utility billing records.

- For the California Energy Commission, developed a Demand Curtailment program initiative to bring about 57 megawatts of demand responsive infrastructure and capability to buildings and factories throughout the state of California. The program targeted HVAC and lighting demand reductions for commercial, manufacturing and state/local government facilities. The program utilized a combination of strategies that enable load curtailment notification through web-based applications and telecommunication devices that activated automatic curtailments during peak demand periods.
- For the Electric Power Research Institute, developed technology solutions and new product strategies for EPRI's industrial application centers addressing the materials fabrication, materials production, food & agriculture, electronics, and healthcare industries.
- For Excellent Energy International (an energy service company based on Thailand partly owned by Global Energy Partners), conducted technical feasibility assessments related to prospective performance-based contracts for energy projects promoting cogeneration, load management and energy efficiency technologies. Serving on the company's Board of Directors.
- For the Louis Berger Group, supporting the USAID Greenhouse Gas Emission Reduction (GEP) project in India. The assignment calls for conducting benchmarking studies of existing solid waste management practices and studying the feasibility of developing methane recovery systems in order to power engines and turbines that can be used for generating electricity. Methane recovery also has the benefit of substantially reducing carbon emissions and thus potentially serving the broader objectives of the Government of India and USAID in reducing greenhouse gases. Other project elements include development of research forums focused on other renewable technology development and broader implementation of energy efficiency initiatives.

1998 - 2000 *Planning/IRP Advisor*
Electricity Generating Authority of Thailand, Bangkok, Thailand

As their Planning/IRP Advisor for 19-months, Mr. Wikler advised EGAT on issues related to long-range planning of energy resources as well as electric industry restructuring and the role of energy efficiency in the privatized electric power market. He oversaw numerous short-term consulting assignments covering topics related to load research data collection efforts, load management program effectiveness studies, energy efficiency market assessments, and impact and process evaluation studies for a variety of programs and applications. Mr. Wikler directed the development of EGAT's long-range integrated resource plan (IRP) that placed supply-side resources on a level playing field with demand-side resources. The EGAT project was funded in part through a US\$15.5 million grant from the Global Environmental Facility/Government of Australia and managed by the World Bank.

1995 - 1998 *Senior Associate/Project Manager*
NEOS Corporation, Lafayette, California

Conducted economic and engineering analysis consulting assignments for clients representing investor-owned utilities, federal and state power agencies, and international utilities. Representative project

experience includes:

- For the Electric Power Research Institute, conducted a load volatility assessment to support the enhancement of product pricing tools already developed by EPRI. Also assessed the feasibility of load management techniques to address increasing utility concerns regarding peak load management.
- For Riverside Public Utilities, conducted load management audits that assessed current customer load characteristics and identified strategies for more effective management of the customer loads including sub-station development, backup generation and energy efficiency.
- For Potomac Electric Power, developed resource potential estimates for commercial-sector DSM and load management programs. Results of the study were included in Pepco's Least Cost Plan filing with the DC and Maryland commissions.
- For Sempra Energy, provided market planning analysis and support for non-residential markets. Activities included the development of customer energy analysis tools to support the sales staff and market segmentation strategies aimed at new product planning and design.
- For Electricity Generating Authority of Thailand, conducted energy audits and engineering simulation studies for 50 large commercial buildings in Bangkok. Results supported development of an important DSM program database for future program planning.
- As project manager for the NEOS medical waste technology initiative, conducted technology and market assessments for seven utility clients identifying and assessing electric-based technologies that could be used for disposal of bio-hazardous medical waste.

1989 - 1995 *Project Director*

Barakat & Chamberlin, Inc., Oakland, California

(Acquired by PG&E Energy Services in 1997)

(Project Director 1994-95, Sr. Associate, 1991-93; Consultant, 1989-91)

Conducted economic analyses and strategic planning for domestic and international utility clients.

Projects encompassed a variety of issues related to DSM program planning and development, market and technology research, and urban and regional planning. Areas of project expertise included the following:

- ***Market Analysis and Strategic Planning.*** Developed segmentation analyses and competitive technology assessments for utility industrial sectors, conducted market potential assessments for competitive technology implementation and identified utility customer needs as they relate to environmental mitigation strategies. He directed such projects for Duke Power, Tennessee Valley Authority, Texas Utilities and EPRI.
- ***Competitive Technology Assessments.*** Provided direction for detailed technical studies requiring the use of engineering simulation models such as DOE-2 and ESPRE to determine the load impacts for DSM measures, electrotechnologies and environmental technologies. He directed such studies for Potomac Electric Power, Pacific Gas & Electric, and the U.S. Congress Office of Technology Assessment.
- ***Demand-side Management.*** Managed long-range DSM potential studies that included forecasts of DSM technical, economic, and achievable potential. He has managed program impact evaluation studies focusing on load impacts derived through engineering models, net-to-gross assessments, and evaluation. He has extensive experience in utilizing existing models and analytical techniques such as engineering thermal load models including DOE-2, cost effectiveness models, and prototype simulations. He directed DSM planning studies for numerous clients including Pacific Gas & Electric, Duke Power, Potomac Electric Power, the Gas Research Institute, and the Electric Power Research Institute.

Gregory A. Wikler
Vice President

- ***Regulatory Support and Expert Testimony.*** Prepared DSM-related testimony in various rate case proceedings, including Midwest Gas' 1992 DSM Hearings, Pacific Gas & Electric's 1993 General Rate Case and Potomac Electric Power's 1990, 1992 and 1994 Least Cost Planning hearings. He testified before the Iowa Utilities Board regarding Midwest Gas' 1992 DSM plan.

1987 - 1989 *Senior Economist*
ADM Associates, Sacramento, California

Performed comprehensive energy-related analyses for investor-owned utilities and federal power marketing agencies. Prepared technical analyses related to energy efficiency technology assessment, market analysis and economic feasibility. Performed comprehensive end-user surveys for the consumer and commercial market segments.

1986 - 1987 *Research Assistant*
Bureau of Governmental Research and Service, University of Oregon, Eugene, Oregon

Assisted Oregon cities and counties in the implementation of energy management programs. Conducted utility rate analyses and compiled inventories of municipal streetlighting systems.

1984 - 1985 *Research Associate*
National Economic Research Associates, Los Angeles, California

Performed economic analyses related to antitrust litigation for clients in the oil and gas, aircraft, shipbuilding, and cosmetic industries. Researched issues of market definition, pricing, and profitability relevant to the evaluation of anti-competitive behavior.

PREVIOUS TESTIMONY

Wisconsin Power and Light Company (Docket No. 6680-UR-112) before the Public Service Commission of Wisconsin (November 2003) regarding Shared Savings program assessment performed for the company.

Midwest Gas (Docket No. EEP-92-09) before the Iowa Utilities Board (1993) regarding Energy Efficiency Plan developed for the company.

EDUCATION

MS, Economics, University of Oregon, Eugene, 1987
Master of Urban Planning, University of Oregon, Eugene, 1987
BS Energy Economics, University of California, Davis, 1982

MEMBERSHIPS

Member of Board of Directors, Peak Load Management Alliance (2001-Present)
Member, Association of Energy Efficiency Service Professionals (1995-Present)

PETER C. YOUNG

BACKGROUND AND EXPERIENCE

BUSINESS ADDRESS: Hawaiian Electric Company
P.O. Box 2750
Honolulu, Hawaii 96840

CURRENT POSITION: Director,
Pricing Division,
Energy Services Department

YEARS OF SERVICE: 18 Years

OTHER EXPERIENCE: Financial Analyst, Pacific Resources, Inc.

Corporate Analyst, Pentagram, Inc.

EDUCATION: MBA (Finance), University of Washington
BA (Economics, Political Science),
Claremont McKenna College, Claremont, CA

OTHER TESTIMONY: Docket No. 04-0113 - Electric Sales Revenue;
Cost of Service and Rate Design
Docket No. 99-0207 - Electric Sales Revenue;
Cost of Service and Rate Design
Docket No. 97-0346 - Electric Sales Revenue;
Cost of Service and Rate Design
Docket No. 7766 - Rate Base
Docket No. 7764 - Rate Base
Docket No. 7700 - Rate Base

EXHIBIT "C"

DSM STIPULATIONS

HECO initially implemented five 5-year energy efficiency DSM programs, which were approved by the Commission in 1996 and for which HECO was allowed to recover program costs, lost margins and shareholder incentives through the DSM Component of its IRP Clause.

On May 31, 2000 and June 30, 2000, respectively, HECO filed applications requesting approval of (1) a new C&I DSM program, which would have consolidated the DSM measures in HECO's three existing C&I DSM programs, for a period of five years, and (2) a new Residential DSM program, which would have consolidated the DSM measures in HECO's two existing Residential DSM programs, for a period of five years. The applications also requested that the Commission approve recovery of program costs, lost margins, and shareholder incentives using the IRP Clause.

After the Consumer Advocate completed its review of the applications, HECO and the Consumer Advocate finalized letter agreements dated and filed October 5, 2001 (C&I DSM programs) and October 12, 2001 (Residential DSM programs), under which HECO's three existing C&I DSM programs and two existing Residential DSM programs would be continued until HECO's next rate case (which HECO committed under the letter agreements to filing within three years using a 2003 or 2004 test year) in lieu of HECO continuing to seek approval of new 5-year DSM programs. (HECO submitted two letter agreements for the Residential DSM programs - - one executed by all parties to the docket that addressed the issues raised by the Consumer Advocate, Hawaii Solar Energy Association ("HSEA") and Life of the Land ("LOL"), and one executed by HECO and the Consumer Advocate that addressed the issues raised by the Consumer Advocate.) Under the agreements, (1) any DSM programs to be in place after HECO's next rate case would be determined as part of the case, (2) for the year beginning

January 1, 2002, and subsequent years, HECO will cap the recovery of lost margins and shareholder incentives if such recovery will cause HECO to exceed its current authorized return on rate base, (3) HECO will not pursue the continuation of lost margins recovery or shareholder incentives in future rate cases, and (4) HELCO and MECO would take the steps necessary to implement any changes made by the Commission with respect to recovery of DSM program costs within one year from the time such costs are incorporated into HECO's rates as a result of HECO's next rate case, at which time HELCO and MECO would cease accrual of lost margins and shareholder incentives. Consistent with the agreement, HELCO and MECO filed requests to continue their existing DSM programs on October 31, 2001.

By Order Nos. 19019 and 19020, issued November 15, 2001, the Commission approved the proposed agreements, subject to certain conditions and modifications. The Commission also reserved the right, upon its own initiative or upon motion, to reopen the dockets or open a separate docket at any time to institute an investigation or other proceedings to ensure that the electric power consumers or ratepayers affected by the proceeding are protected and that the implementation of the parties' agreements are consistent with the Commission's IRP Framework. Order Nos. 19019 and 19020 also required that HECO and the Consumer Advocate (in the case of the C&I DSM programs), and HECO, the Consumer Advocate, HSEA and LOL (in the case of the Residential DSM Programs) meet at specified time intervals to assess certain matters such as the economic and rate impacts, if any, resulting from the implementation of the parties' agreement and HECO's need to file a rate case, and submit joint reports at specified time intervals that include a summary of the parties' meetings, the anticipated filing date of HECO's next rate case, the parties' affirmation that the agreement should continue to be implemented, and a request by the Consumer Advocate for more information from HECO (if necessary).

On August 7, 2003 and August 12, 2003, HECO filed agreements with the parties to the stipulations, which modified the stipulations by delaying the required filing of a general rate case by approximately 12 months such that HECO would utilize a 2005 test year for the filing. (In order to comply with the stipulation, the general rate case application needed to be filed in the second half of 2004.) The terms and conditions of the stipulations, with the conditions imposed by the Commission's approval orders, remained generally unchanged, with the new agreements providing for (1) temporary continuation of existing C&I and Residential DSM programs with such modifications as the Commission may, from time to time, approve or order, until the next rate case, (2) ending of the current DSM programs as part of the next rate case, with HECO pursuing development of new and/or replacement DSM programs that will continue to provide ample opportunities to ratepayers to strive for energy efficiency, and with the new and/or replacement DSM programs that may be in place after the next rate case to be determined as part of that case, (3) HECO continuing to accrue and recover the program costs, lost margins and shareholder incentives for HECO's existing DSM programs in accordance with the agreements, terms and conditions of the stipulations and Commission approval orders, (4) HECO continuing to cap recovery of lost margins and shareholder incentives based on the existing surcharge mechanism, so that such recovery will not allow HECO to exceed its current authorized return on rate base, (5) HECO continuing to reflect shareholder incentives earned in the monthly calculation of its operating revenues, until interim rates are established in the next rate case, (6) HECO agreeing to not pursue the continuation of lost margins and shareholder incentives through a surcharge mechanism in the next rate case or thereafter, and (7) HECO and the parties abiding by the Commission requirements that the parties meet every six months to confer and assess, among other things, the economic and rate impacts, if any, resulting from the

implementation of the stipulations, and to file joint reports regarding the meetings. The Commission approved the new agreements by Order Nos. 20392 and 20391, issued August 26, 2003 in Docket Nos. 00-0209 and 00-0169, respectively.

The stipulations between HECO and the Consumer Advocate resulted from an oral agreement reached prior to the status conference on September 21, 2001 with respect to HECO's then-proposed consolidated DSM programs, and were finalized on October 3, 2001. The parties were willing to temporarily continue HECO's existing DSM programs, rather than attempt to resolve all issues regarding HECO's new DSM programs and trigger the need for an immediate rate case if recovery of lost margins was discontinued, "because of the substantial uncertainty facing our nation, our state and HECO in the immediate future, as a result of the events of September 11, 2001." Ratepayers were assured that HECO's continued recovery of lost margins and shareholder incentives would not result in "overearnings" for HECO, even if the state economy immediately recovered from the events of "9/11", because HECO "agreed to cap recovery of lost margins and shareholder incentives based on the existing surcharge mechanism, so that such recovery will not allow the Company to exceed its authorized rate of return on rate base."

At the time of the original stipulations, HECO indicated to the Consumer Advocate that it planned to seek alternative incentive mechanisms for DSM programs in its rate case. See Affidavit of Robert A. Alm, attached to HECO's Motion for Partial Reconsideration (May 15, 2006). HECO attempted to make it clearer in the 2003 agreements that it planned to seek alternative incentive mechanisms for DSM programs in its rate case, by indicating that it was agreeing to not pursue the continuation of lost margins and shareholder incentives through a surcharge mechanism in the next rate case or thereafter.

HECO's FSOP states that “[i]t was never the intention of the Company to pursue DSM programs without being compensated. Rather it was the intention of the Company to propose an incentive mechanism as an alternative to the current shareholder incentives and lost margins recovery in the next rate case.”¹ Simply stated, that means that HECO did not intend to forego all compensation.² That does not mean, and was not intended to mean, that “HECO will not do DSM at any time, under any set of circumstances, if they are not compensated beyond the recovery of all fixed costs.” For example, HECO is committed to take steps (including pursuing cost effective DSM programs) necessary to maintain and improve reliable electric service. HECO is also committed to pursuing DSM programs to the extent it is directed to do so by the Commission.

At the same time, fair compensation has been and remains an important element of these programs for a number of reasons. First, fair compensation has proven to be effective in this and other utility jurisdictions and requires less regulatory resources than “command-and-control” regulation. In addition, fair compensation puts energy efficiency DSM options on a level playing field with supply-side options. Indeed, the IRP Framework explicitly identifies among its Governing Principles (Section II.B.) that “incentive mechanisms should be structured so that investments in suitable and effective demand-side management programs are at least as attractive to the utility as supply-side options.” Furthermore, all other factors being equal, there is a

¹ HECO FSOP at 55; HECO T-10 at 52-53; see response to DOD/HECO-IR-6-4.c in Docket No. 04-0113.

² The DSM stipulations contemplated that new DSM programs, including any new mechanisms to compensate or provide incentives for utilities to efficiently and effectively implement such programs, would be established in the same proceeding in which the existing programs and incentive mechanisms were terminated. Thus, the stipulations provided that the current DSM programs would end as part of the next rate case, and that the new and/or replacement DSM programs that may be in place after the next rate case would be determined as part of that same case. HECO did not stipulate that it would implement replacement DSM programs, or continue its existing DSM programs after the “next” rate case, without the opportunity to propose or earn any form of compensation for successfully implementing the programs.

financial disincentive to pursue energy efficiency savings between rate cases without a mechanism to compensate the utility for the recovery of fixed costs foregone due to sales lost as a result of the aggressive implementation of DSM programs. Moreover, third-party DSM service providers generally would also require compensation beyond simple program cost recovery. Finally, appropriate alignment of financial incentives with well performing energy efficiency programs is simply good public policy.

In addition, HECO has made alternative proposals with respect to utility compensation for implementing DSM programs in order to facilitate discussion that could lead to substantial agreement on one of the three proposals or some version of the three proposals. Response to HSEA/HECO-IR-7.

EXHIBIT “D”

COMPARISON OF MAXIMUM ACHIEVABLE POTENTIAL TO PROGRAM GOALS

	2005	2010	2015	2020
MAP Energy Savings (GWh) ¹	78	437	948	1,255
2004-05 Actual Acquired ²	83	83	83	44
2006-2020 Projected ³	0	290	515	684
Projected Program Savings (GWh) ⁴	83	373	598	728
Percent of MAP	107%	85%	63%	58%

Sources:

1. Exhibit HECO-1101, Page 89 (Table 6-9, Page 90 of 111). Values represented at the gross customer level.
The MAP in Exhibit HECO-1101, has a base year of 2003.
2. Annual savings from measures installed in 2004 and 2005, at the gross customer level.
3. From Exhibit 7, Page 2 (revised 8/24/06), but at the gross customer level. (Exhibit 7 is shown at the net system level.)
4. Sum of 2004-05 Acquired impacts and Projected Program Savings, at the Gross Customer Level.

EXHIBIT “E”

DSM Program Administration Matrix (by Program)

Segment	Technical & Market Expertise	Customer Relationship	Financing Cost	Cost Structure	Economies of Scale
Low Income Residential	HECO has expert knowledge of DSM measures, but is not as familiar with delivery channels, with the exception of LIHEAP. Third-party may provide innovative delivery ideas and/or be specifically organized to focus on this segment.	HECO does not have special expertise with the low income customer segment. Relies on other government agencies to reach these customers.	Several local, state, and federal government programs, along with private charitable organizations are focused on this segment and have special funding available.	Utility has no cost history with this segment.	Government agencies and/or charitable organizations may find that adding energy efficiency programs can be done at low cost since they have established delivery channels and infrastructure.

Note: HECO coordinates with Honolulu Community Action Program, MECO with Maui Economic Opportunity & HELCO with Housing & Community Development Corp, of HI

Segment	Linkage to System Operations	Importance of Program Continuity	Regulatory Agency Impact of Transition	Potential Program Conflicts
Low Income Residential	Limited	Limited, since this would be a new DSM program.	Added costs associated with selection and oversight of new administrator.	Other residential energy efficiency programs are being offered (REWH, RNC, ESH), but require some initial investment by the participant. RDL program eligibility is a possibility.

DSM Program Administration Matrix (by Program)

Segment	Technical & Market Expertise	Customer Relationship	Financing Cost	Cost Structure	Economies of Scale
Renters of single-family or multi-family housing units	Utility has expert knowledge of DSM measures, but has no special expertise with reaching this segment.	"Customer" is difficult to identify & difficult to reach due to conflict between owner of home & user of electricity/bill payer.	Very difficult to finance purchases of DSM measures since this segment is generally transient in nature. However, the PAYS program may be a pathway to resolving this issue.	Minimal cost history, if any specific to this customer segment.	Third party may be able to implement a creative solution & target this market segment.

Segment	Linkage to System Operations	Importance of Program Continuity	Regulatory Agency Impact of Transition	Potential Program Conflicts
Renters of single-family or multi-family housing units	Limited	Limited, since this segment has been hard to reach.	Added costs associated with selection and oversight of new administrator.	Residential customers are also potentially eligible for RLI and ESH. However, RLI eligibility requirements will separate segments. ESH is a retail-based program that should not interfere with this program.

DSM Program Administration Matrix (by Program)

Segment	Technical & Market Expertise	Customer Relationship	Financing Cost	Cost Structure	Economies of Scale
Master-metered low rise multi-family housing buildings	Utility has expert knowledge of DSM measures, but has no special expertise with reaching this segment.	HECO does not have special expertise with the low-rise apt. When master metered, occupant has little motivation to reduce energy use. Customer includes a combination of owners and renters.	Difficult to determine who should pay for the DSM measure. Funding may be available from third party or government assist, depending on HUD status of units, and/or ownership of units.	Minimal cost history, if any specific to this customer segment. May be structured as fee-for-service, shared savings, or performance contract with third party.	Third party may be able to implement a creative solution & target this market segment. Measures such as T8, CFLs and A/C can be bundled as an energy reduction package. Retrofit programs can be coordinated through homeowners association or property management company.

Segment	Linkage to System Operations	Importance of Program Continuity	Regulatory Agency Impact of Transition	Potential Program Conflicts
Master-metered low rise multi-family housing buildings	Limited	Limited, since this segment has been hard to reach.	Added costs associated with selection and oversight of new administrator.	Significant potential overlap with the ESH CFL component. See ESH program.

DSM Administration matrix.xls **DSM Program Administration Matrix (by Program)**

Segment	Technical & Market Expertise	Customer Relationship	Financing Cost	Cost Structure	Economies of Scale
Small Sched G Commercial EE	Utility has expert knowledge of DSM measures and some familiarity with delivery channels through its existing Energy Solutions for Small Business Program. However, the heterogeneity of the customer segment makes it hard to serve.	Due to the number of customers and the diversity of business types, HECO has not been able to establish the same level of customer relationship that it has with its larger customers. This segment could benefit from new expertise in DSM measure delivery.	Customers in this segment have used internal as well as third-party financing. However, low-cost financing by government agencies may be available.	The utilities do not have an extensive base upon which to develop historical cost.	Statewide prescriptive measure deployment may be called for if programs are easy to understand and administer (i.e. same customer incentive levels statewide).

Segment	Linkage to System Operations	Importance of Program Continuity	Regulatory Agency Impact of Transition	Potential Program Conflicts
Small Sched G Commercial EE	Limited	Limited, since this segment has been hard to reach.	Added costs associated with selection and oversight of new administrator.	Low

Exhibit 6
Docket No. 05-0069
Page 4

DSM Program Administration Matrix (by Program)

Segment	Technical & Market Expertise	Customer Relationship	Financing Cost	Cost Structure	Economies of Scale
Residential ESH (Energy Star Appliance)	Utility has extensive familiarity with the local manufacturer rep., distribution, and retail store infrastructure. However, it recognizes that, with regards to nationwide Energy Star appliance marketing it does not have any greater expertise than others involved with the Energy Star program.	Has a good relationship with its residential customers through normal electrical utility transactions and as an established business in the community. Customers have a recourse to the utility, if things do not go as expected.	Special low cost financing may be available through government agencies or charitable organizations.	HECO does not have historical cost data for this new program.	Very appropriate to extend this program statewide.

Segment	Linkage to System Operations	Importance of Program Continuity	Regulatory Agency Impact of Transition	Potential Program Conflicts
Residential ESH (Energy Star Appliance)	Limited	None, new program.	Limited	Significant overlap with the ESH CFL component. See discussion of CFLs on next page.

DSM Program Administration Matrix (by Program)

Segment	Technical & Market Expertise	Customer Relationship	Financing Cost	Cost Structure	Economies of Scale
Residential ESH (CFLs)	Utility has extensive familiarity with the local manufacturer rep., distribution, and retail store infrastructure through the CFL coupon rebate pilot program it implemented during the 4th quarter of 2005. As a retail-based program, HECO does not have any particular expertise in this area.	The 4th quarter 2005 coupon rebate program proved successful with customers, and HECO's brand name is recognizable.	Not applicable.	Net cost of the CFL pilot, including the customer rebate paid for by the utility, advertising and tracking was \$1.18 per lamp purchased under the program.	The CFL program is ubiquitous and can be implemented statewide.

Segment	Linkage to System Operations	Importance of Program Continuity	Regulatory Agency Impact of Transition	Potential Program Conflicts
Residential ESH (CFLs)	Limited	Important. The Commission has approved HECO's Interim DSM Proposal. As a result, HECO has already begun to re-establish trade ally relationships formed in the 2005 pilot. CFLs for roll-out in the next few months. CFLs also provide significant load reduction, and HECO would prefer to administer this	Limited	Significant overlap with the ESH Energy Star appliance program. Both programs should be administered by the same entity.

DSM Program Administration Matrix (by Program)

Segment	Technical & Market Expertise	Customer Relationship	Financing Cost	Cost Structure	Economies of Scale
Large Sched J & P Commercial	HECO has expert knowledge of DSM measures and customer facilities and has an established, effective organization to administer, market, deliver, track, and follow-up with measure installation.	HECO already has established customer relationships based on a high level of trust and credibility that have been developed over many years.	Customers in this segment have used internal as well as third-party financing. Financing by government agencies or charitable organizations is limited.	Utilities have established cost levels that compare well against Efficiency Vermont (see Exhibit 4). Incremental cost of establishing same level of customer relationship and infrastructure by a 3rd-party is expected to be high.	Program measures can be similar statewide, but the electrical system needs vary among islands. Therefore, program design may emphasize different measures and provide different levels of customer incentives.

Segment	Linkage to System Operations	Importance of Program Continuity	Regulatory Agency Impact of Transition	Potential Program Conflicts
Large Sched J & P Commercial	Limited	High. Customers and trade allies depend on program continuity and constancy in order to appropriately plan financially for energy efficiency projects, especially for new construction projects with long lead times (equipment decisions are made at the design vs. construction stage of a project).	Added costs associated with selection and oversight of new administrator.	Mix of customer choice offerings will include CIDLC Program.

DSM Program Administration Matrix (by Program)

Segment	Technical & Market Expertise	Customer Relationship	Financing Cost	Cost Structure	Economies of Scale
Residential Water Heating (retrofit)	Utility has received national recognition for its residential solar water heating program and has an established, effective infrastructure to administer, market, deliver, track, and follow up with measure installation.	Customers rely upon the HECO-branded program to deliver standard, well designed, and reliable systems installed by reputable contractors. Customers trust the utility as a point for recourse if their installation does not go as expected.	Primarily by contractor or third-party financing. However, government assistance programs are, or will be available, to help low income or renters (e.g., PAYS).	HECO's historical cost to administer and deliver residential solar water heating have resulted in TRC test benefit/cost ratios less than one because of the costs of education and enhanced awareness.	Solar water heating DSM programs could be implemented on a statewide basis.

Segment	Linkage to System Operations	Importance of Program Continuity	Regulatory Agency Impact of Transition	Potential Program Conflicts
Residential Water Heating (retrofit)	Limited	High. Implementation of the current program depends heavily on solar contractors in a competitive market. Market uncertainty caused by transition could result in severe disruption of this market.	Added costs associated with selection and oversight of new administrator.	Residential customers are also potentially eligible for RLI and ESH. However, RLI eligibility requirements will separate segments, and ESH is a retail-based program that should not interfere with solar water heating.

DSM Program Administration Matrix (by Program)

Segment	Technical & Market Expertise	Customer Relationship	Financing Cost	Cost Structure	Economies of Scale
Residential Water Heating (New Construction)	Utility has received national recognition for its residential solar water heating program and has an established, effective infrastructure to administer, market, deliver, track, and follow up with measure installation.	HECO's relationships with residential developers have been developed over a long period to the same high level of trust and credibility as large commercial customers.	DSM measures are included in final housing unit sales price and specially financed by the developer.	Historical program cost data shows TRC cost test results typically less than one. At the time of construction the developer does not know family-size and sizes the system based on the number of bedrooms. In some cases, small families will move into the home and the system will be oversized. However, the solar system will still produce savings for an estimated 15 years. Consequently, while the system may not produce cost effective savings for the first homeowner, it may result in cost effective savings for subsequent homeowners.	New construction water heating measures (solar, tank & timer, high efficiency water heaters, and heat pumps) could be administered statewide.

Segment	Linkage to System Operations	Importance of Program Continuity	Regulatory Agency Impact of Transition	Potential Program Conflicts
Residential Water Heating (New Construction)	Limited	Continuity is crucial, because of recent strides in certifying Gentry Homes as an Energy Star Home Builder. Need to continue efforts to extend the momentum to other housing developers. Long lead times with new construction (equipment/appliance decisions are made at the design vs. construction stage of the projects).	Added costs associated with selection and oversight of new administrator.	Residential water heating program for new construction includes elements that overlap with Hawaii BuiltGreen targets. Thus, same administrator should administer this program and BuiltGreen.

DSM Administration matrix.xls **DSM Program Administration Matrix (by Program)**

Segment	Technical & Market Expertise	Customer Relationship	Financing Cost	Cost Structure	Economies of Scale
Residential Built Green (New Construction)	Utility has expert knowledge of these DSM measures and has established locally developed relationships with architects and engineers to design these measures specifically for the environment in Hawaii locales.	HECO's relationships with residential developers have been developed over a long period to the same high level of trust and credibility as large commercial customers.	DSM measures are included in final housing unit sales price and specially financed by the developer.	This is a new program. Therefore, HECO has no historical cost data.	This program could be implemented on a statewide basis.

Segment	Linkage to System Operations	Importance of Program Continuity	Regulatory Agency Impact of Transition	Potential Program Conflicts
Residential Built Green (New Construction)	Limited	None, new program	Added costs associated with selection and oversight of new administrator.	Measures in Built Green programs overlap with residential program for water heating. Thus, same entity should administer both programs.

DSM Program Administration Matrix (by Program)

Segment	Technical & Market Expertise	Customer Relationship	Financing Cost	Cost Structure	Economies of Scale
RDLC	Utility has expert expertise in administering this program. Since 2005, HECO has installed over 9,000 residential load control switches and has begun to install these switches on military base housing as well.	HECO relationship with its residential program participants has been excellent. Turnover in the program has been less than 1%, lower than originally projected.	Not applicable	Program costs including installation, customer recruitment, customer incentives, and tracking is approximately \$290 per installed switch. This cost is expected to rise in time as cost of installation labor	This program can be extended statewide, but since its objective is load reduction (without energy savings), it is most appropriate for those systems that are capacity constrained.

Segment	Linkage to System Operations	Importance of Program Continuity	Regulatory Agency Impact of Transition	Potential Program Conflicts
RDLC	Critical. Utility system operators must be able to activate the switches upon a moment's notice based on the system condition. Therefore, the administration of the program must be by the utility.	High. Disruption of the program risks losing electricians to the very strong construction market and risks eliminating the inventory of potential installations that allows geographical scheduling to reduce travel time costs.	Must exercise care that the 3rd-party administrator can react immediately to potential outage conditions.	Can complement programs directed at retrofit installation (REWH and ESH), with the recognition that the objective of the RDLC program is load reduction, rather than energy savings.

EXHIBIT "E"
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DSM Program Administration Matrix (by Program)

Segment	Technical & Market Expertise	Customer Relationship	Financing Cost	Cost Structure	Economies of Scale
CIDLC	HECO has expert knowledge of DSM measures and customer facilities and has an established, effective organization to administer, market, deliver, track, and follow-up with measure	HECO already has established customer relationships based on a high level of trust and credibility that have been developed over many years.	Alterations of the customer's circuitry to accommodate CIDLC are typically funded internally by the customer.	Initial program costs are high due to billing settlement software development costs and the labor costs to prepare engineering studies identifying the potential at each customer's facility.	This program can be extended statewide, but since its objective is load reduction (without energy savings), it is most appropriate for those systems that are capacity constrained.

Segment	Linkage to System Operations	Importance of Program Continuity	Regulatory Agency Impact of Transition	Potential Program Conflicts
CIDLC	Critical. Utility system operators must be able to activate the switches upon a moment's notice based on the system condition. Therefore, the administration of the program must be by the utility.	High. The number of participants has begun to accelerate. This program has the greatest potential for load reduction. Any uncertainty caused by transition would delay the acquisition of reductions through this program.	Must exercise care that the 3rd-party administrator can react immediately to potential outage conditions.	Can complement C&I programs with the recognition that the objective of the CIDLC program is load reduction, rather than energy savings.

CERTIFICATE OF SERVICE

I hereby certify that I have this date served a copy of the foregoing **OPENING BRIEF OF HAWAIIAN ELECTRIC COMPANY, INC., HAWAII ELECTRIC LIGHT COMPANY, INC. AND MAUI ELECTRIC COMPANY, LIMITED, EXHIBITS "A"- "E",** together with this Certificate of Service, by hand delivery and/or mailing a copy by United States mail, postage prepaid, to the following:

DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS
DIVISION OF CONSUMER ADVOCACY
335 Merchant Street, Room 326
Honolulu, HI 96813
(Hand Delivery)

DR. KAY DAVOODI
UTILITIES RATES AND STUDIES OFFICE
NAVFAC WASHINGTON
1314 Harwood Street, S.E.
Washington Navy Yard, DC 20374-5018

RANDALL Y. K. YOUNG, ESQ.
NAVAL FACILITIES ENGINEERING COMMAND PACIFIC
258 Makalapa Drive, Suite 100
Pearl Harbor, HI 96860-3134

E. KYLE DATTA
ROCKY MOUNTAIN INSTITUTE
P. O. Box 390303
Keauhou, HI 96739

HENRY Q CURTIS
VICE PRESIDENT FOR CONSUMER ISSUES
LIFE OF THE LAND
76 North King Street, Suite 203
Honolulu, HI '96817

BRIAN T. MOTO, ESQ.
CINDY Y. YOUNG, ESQ.
DEPARTMENT OF THE CORPORATION COUNSEL
COUNTY OF MAUI
200 South High Street
Wailuku, HI 96793

RICHARD R. REED
PRESIDENT
HAWAII SOLAR ENERGY ASSOCIATION
P. O. Box 37070
Honolulu, HI 96837

WARREN S. BOLLMEIER, II
PRESIDENT
HAWAII RENEWABLE ENERGY ALLIANCE
46-040 Konane Place, #3816
Kaneohe, HI 96744

H. A. "DUTCH" ACHENBACH
PRESIDENT A1\ CEO
KAUAI ISLAND UTILITY COOPERATIVE
4463 Pahee Street
Lihue, HI 96766-2032

JOSEPH McCAWLEY
REGULATORY MANAGER
KAUAI ISLAND UTILITY COOPERATIVE
4463 Pahee Street
Lihue, HI 96766-2032

JIM R. YATES
PRESIDENT
THE GAS COMPANY
P. O. Box 3000
Honolulu, HI 96802

STEVEN P. GOLDEN
DIRECTOR EXTERNAL AFFAIRS & PLANNING
THE GAS COMPANY
P. O. Box 3000
Honolulu, HI 96802

KENT D. MORIHARA, ESQ.
MORIHARA LAU & FONG, ESQ.
841 Bishop Street, Suite 400
Honolulu, HI 96813

CARL FREEDMAN
HAIKU DESIGN & ANALYSIS
4234 Hana Highway
Haiku, HI 96708

KAL KOBAYASHI
ENERGY COORDINATOR
DEPARTMENT OF MANAGEMENT
COUNTY OF MAUI
200 South High Street
Wailuku, HI 96793

LANI D. H. NAKAZAWA, ESQ.
LAUREL LOO, ESQ.
JAMES K. TAGUPA, ESQ.
OFFICE OF THE COUNTY ATTORNEY
COUNTY OF KAUAI
4444 Rice Street, Suite 220
Lihue, HI 96766-1300

DATED: Honolulu, Hawaii, October 25, 2006.



THOMAS W. WILLIAMS, JR.
PETER Y. KIKUTA

Attorneys for
HAWAIIAN ELECTRIC COMPANY, INC.
HAWAII ELECTRIC LIGHT COMPANY, INC.
MAUI ELECTRIC COMPANY, LIMITED

